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June 1968

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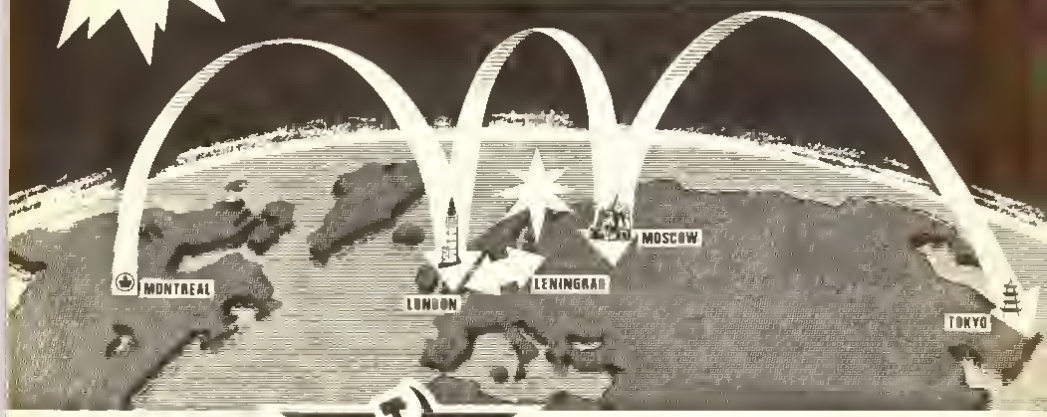

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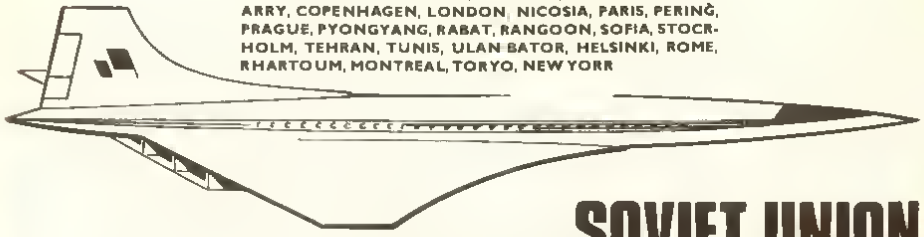

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CONTENTS

FRONT COVER by Alexei Storch: *Horses are Elena Petushkova's passion. But it is not just blind enthusiasm—she really knows how to handle them, and has won many international dressage competitions. For more about horses, see P. 98.*

Picture credits: *Vadim Konopliansky (6), Valeri Sudarev (17, 83, 119, 153), Leila Brun (27), Yuri Shalamov (40-47), Yuri Maximov (62), Alexei Leonov (78), Yuri Shalamov, Andrei Kniazev, Mstislav Botashov (84-90), Alexander Arutyunov (97), Alexei Storch, Leonid Zhdanov (98-107), Klavdia Vdovina (110-115), Vadim Gippenreiter, Boris Krutsko (161-167), Alexander Makarov (169-176), Anatoly Galkin (177-184).*

Designed by Natalia Mishchenko, Tatiana Rankova. Technical Editor, Berta Bresler.

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LETTERS TO THE EDITOR

Flying saucer in Mongolia

I want to recount an event I witnessed a few years ago. That summer we were working on the "Ugtal" state farm. On the evening of June 27, 1964, I was returning to Ulan Bator in a very crowded lorry Between about 10 and 11 p.m. the moon (or what I took for the moon) rose over the mountains on the north west. Within minutes, and in full view of everybody, the object went straight up, sharply changed its course and then moved over the horizon in a northerly direction. Some 10 to 15 minutes later, the "moon" disappeared. I failed to take pictures of this strange "moon". And here is one more detail: when it hove into sight from behind the mountains it was the size of the real moon, but as it gained altitude it looked larger and larger. The object was also seen from Ulan Bator.

Haserdene Bold, Ulan Bator, Mongolian People's Republic

Battle of Stalingrad

Marshal Konstantin Rokossovsky's article on the Battle of the Volga *(February issue)* was in my opinion the best account I have read of this particular area of fighting in the last war.

Andreas Hattrick, Liverpool, England

Woman's place

Your articles give me the impression that men in Russia do little to make a home life. This is in contrast to our men. Especially among the younger generation, fathers help a lot: they do shopping, push the pram, care for babies, work in the garden, and do home repairs and decoration.

Q. R. A. Daniels, Peacehaven, Newhaven, Sussex, England

Regarding the article "Woman's Place" in the January issue, don't you think that the main point is that a wife and husband should give and take together? Then they will live happily and have equal status.

T. Fortlage, Littlehampton, Sussex, England

So far I have enjoyed all the SPUTNIKS But I am sickened by the January edition. Why do you let such bitterly cynical articles as "Fighting Patriarchal Views", "Back in the Kitchen", "When All Men Understand" and "Equality or Levelling Down" pass for an average day in the life of a Soviet woman?

Alastair Martin, Windsor, Berkshire, England

Voice of the brain

On the subject of extra-sensory perception, I hope the following may be of interest. In 1933, as a boy aged 15, I went to Scarborough, in Yorkshire, to stay with my uncle.

A few days after my arrival in Scarborough, I woke up at ten minutes past seven one morning, quite suddenly, and knew beyond all doubt that my mother (at home in Southport) was dead.

Soon after nine o'clock my uncle came to my bedroom to wake me up, with a telegram in his hand, and told me he had bad news for me. Before he could say any more, I said, "Yes, I know, Mother's dead. She died at ten past seven."

The telegram from my father said that my mother had collapsed and died suddenly from a heart attack, and I later found that it was at exactly the time that I woke up, 120 miles away, and knew she was dead.

A. E. Hardman, Blackburn, Lancashire, England

If telepathy exists, there must be a logical explanation based on natural laws of science. If telepathy is the "sixth sense", we must try to discover its purpose as a survival weapon. We seem to have lost the ability in the years of civilisation.

C. F. Luck, Fulham, England

I had a curious experience some 20 years ago. I read an advertisement in the papers about the opening of a Plastic Shop. Please bear in mind that I don't usually read advertisements. A couple of days later I had to go to the Court of Trade where I had to register something. In the queue, just in front of me, with her back towards me, was a lady. When she handed over her paper to the gentleman in charge, I said to myself. "That is the lady of the Plastic Shop". Now mark my words: I did not know her, I had never seen her before, and never since. I was pushed by something in myself, and I couldn't help being impolite, and I looked over her shoulder, and there I read on her licence: PLASTIC SHOP. I am still puzzled at this very strange happening.

G. Gryp, Oostkamp, Belgium

Continued on Page 5

LETTERS *continued*

Medieval rockets

Looking through your SPUTNIK *(February issue 1968)* I noticed a few inaccuracies which could be easily spared.

The author you mention in "Cosmodrome in a University Hall" (p. 135) was Kasimierz Siemieniowicz, who was not a Lithuanian colonel, as the article says, but a Polish aristocrat of the Ostoja family in Lithuania, who served as a military engineer in the Polish royal artillery and was second in command.

Kasimierz Siemieniowicz was sent to Holland by the Polish King Jan-Kazimierz to further his education in military engineering, and there (in Amsterdam) published his famous treatise on ordnance (1650).

It is believed that the second part of the treatise had been prepared for publication, but for some unknown reason never appeared in print, and that its manuscript was kept in the Artillery Museum in St. Petersburg (Leningrad). This, at any rate, is what military expert B. Gembarzewski holds as a true fact. He says he saw the original manuscript in 1909.

Mieczyslaw Andrysik, Bielsko-Biala, Poland

* **Unfortunately, this menuscript is absent from the collections at the Artillery Museum in Leningrad Ed.**

The book by Siemieniowicz was republished in Poland in 1963. The second part of this book is the original text in Latin.

Ryszard Rutkowski, Gliwice, Poland

Journalist's opinion

SPUTNIK monthly digest gets better and better. To an English journalist this is heartening because it shows progress in a trade by which all the world benefits.

James Bartlett, Watford, Herts, England

Looking for pen-friends

I would like to have pen-friends all over the world to discuss the youth problems of to-day. I would gladly exchange postcards. I am 19 and can write in Russian, German and Polish.

Roman Rutkowski, Yagellie Street II, Apt. 2, Puslenk, Poland

I keenly desire to have pen-friends in different countries. I am a student of 17. I know Hindi and English. My hobbies are stamps, view cards and coins.

Vinod Agrawal, Clock Tower, Chandauri (V.P.), India

I am 18. Can write in French, German, Esperanto and Serbo-Croatian.

Zorista Lekich, 6 November Street 23, Sarayevo, Yugoslavia

I want to have pen-friends all over the world. I am 22 and a student of the university. I know English and Arabic. My hobbies are: correspondence, hiking, literature, fishing and music.

Rosmi Ayoub Sanad, Assint University, Teachers' College, U.A.R.

I would like pen-friends in Germany, Greece, India, Israel, Italy, Netherlands, New Zealand, Norway, Sweden, Switzerland, America and Russia. I am 16 years old and my main interests are: music, art, languages, stamps and postcard collecting

Netta Akroyd, 17 The Crescent, Chorley, Lancashire, England

I am 20. My hobbies are: sport, literature, music, art, photography and philately.

Mitko Slavov, Rakowski Street 112, Stara Zagora, Bulgaria

I would like pen-pals from all over the world, except the U.S.A. and Japan, as I already have some in those countries. I would prefer pen-pals in France or Spain. I am 14 years old. My interests are: reading, embroidery, classical and pop music.

Mary Murphy, 4 Canon Mooney Gardens, Ringsead, Dublin 4, Ireland

I am fond of pen-friendship. I am 19. My hobbies are: stamps, sport, reading, music.

Masood Akhtar, House No. 1136/11, Mohallah Mian Feroze Shah, Nowshera Cantt., Distt. Peshawar, West Pakistan

I want to have pen-friends in Russia and in Asia. My hobbies are: collecting stamps and postcards. I enjoy music, reading, horseback riding, swimming and I am an artist. I know only English. I am 25 years old.

Nancy E. Lake, 1499 California No. 234, San Francisco, California 94109, U.S.A.

I am very interested in writing to people, especially in Eastern Europe and Australia. I am 17 years old. My interests are: art, music, theatre, poetry. I know French and German.

J. Weeks, 58 Falmouth Road, Horfield, Bristol 7, England

Please address letters to: The Editor, Sputnik Magazine, 2 Pushkin Square, Moscow, USSR

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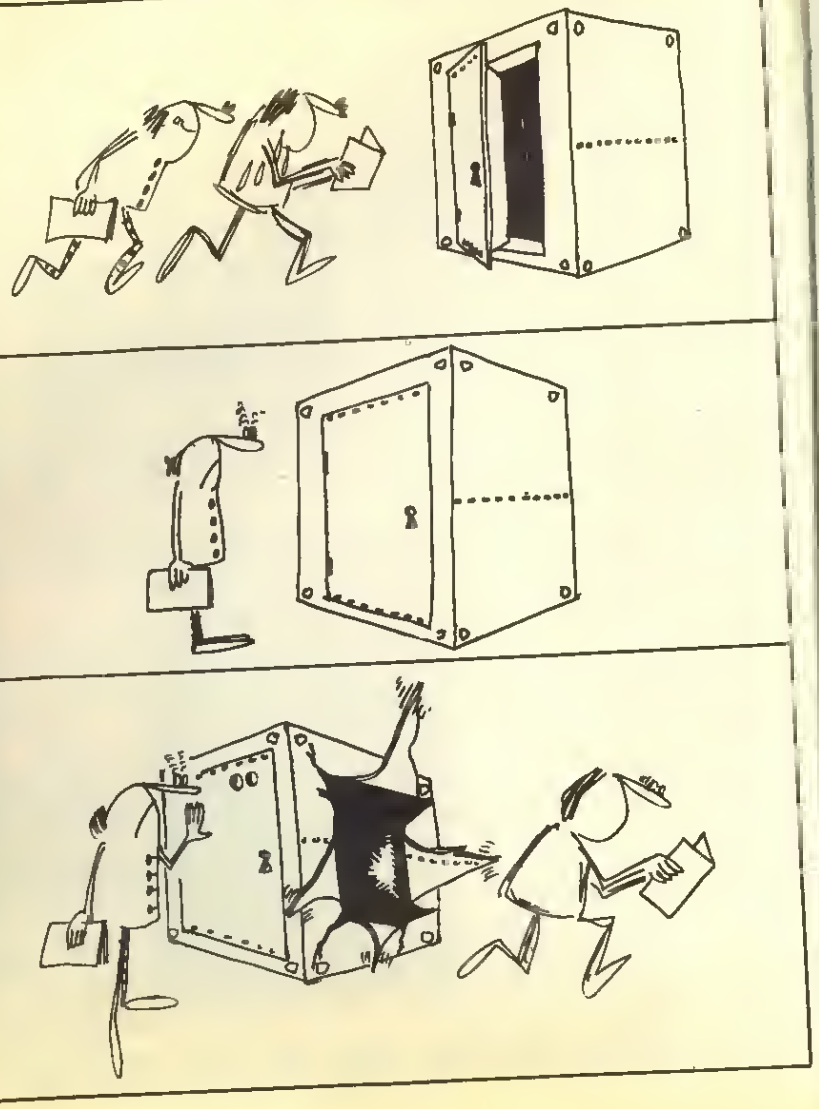


Written specially for SPUTNIK by Alexander KAZANTSEV

THE TUNGUS CATASTROPHE

"The Tungus meteorite" is the name given to the strange cosmic body that invaded the Earth's atmosphere over Siberia on June 30, 1908. Was it a meteorite, a comet, or a gigantic clot of cosmic dust? Could it have been a spaceship that came to grief on our planet?

This tree remained dead "on its feet" at the very epicentre of the explosion.

The weather looked promising that day—blue sky over vast expanses of forest, crisp dry air, serene, almost motionless. And suddenly....

The air shook to wbat sounded like an artillery barrage, and hundreds of people—peasants, hunters, fishermen —gazed in amazement and fear at another sun, brighter than the sun itself, a ball of fire that hurtled across the sky.

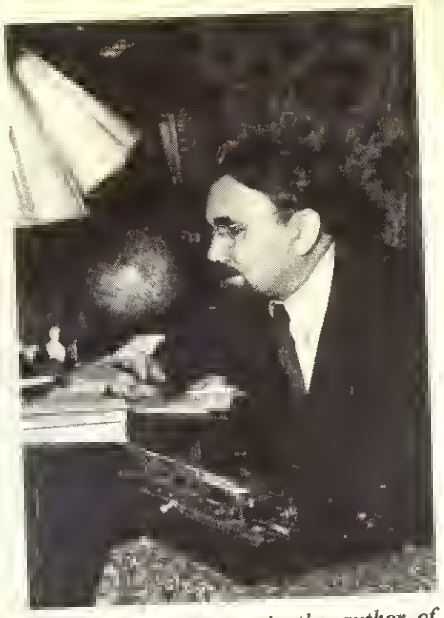
A few seconds later, people at the Vanavara trading post saw on the horizon a dazzling fountain of light that spread out io a mushroom-shaped cloud. Then came a noise like thunder, heard even in Kansk, 600 miles from Vanavara. A train passing through there rumbled to a halt, for the driver tbought there had been an explosion on board.

Then a hurricane swept over the forest, felling trees, ripping off roofs and smashing windows. The wave of air circled the globe twice and was registered even in London. Huge waves on the Angara and other rivers rolled ominously, breaking up large rafts. Seismological stations in the Far East, Europe and elsewhere registered earth tremors.

All this happened 60 years ago—on the morning of June 30, 1908.

Then, for several days, the whole world marvelled at the strange dawns and the unusually bright nights: in Paris one could read newspapers in the streets on a moonless night, and in Moscow pictures were taken at midnight. However, the excitement soon died down and people began to forget the strange incident.

As years went by, facts were more and more thickly interlaced with legends, while somewhere in the heart of the great Siberian forest, thousands of square miles of wreckage were gradually overgrown with bush and grass.



Alexander Kazantsev is the author of about 30 books, among them "Floating Island" and "Arctic Bridge". Many of his works have been translated into English, French, German, Japanese and other languages.

☆ ☆ ☆

In March 1921, Leonid Kulik, of the Mineralogical Museum in Leningrad, came across a leaf of an old tear-off calendar witb a brief note about a mysterious explosion by the River Tunguska 13 years before, and he realised that what he had read about was of great scientific interest.

At a time of famine and economic chaos, when the Civil War was still going on, the Soviet Government nevertheless provided some money for a scientific expedition, the first in the history of the new Russia.

Neither Kulik nor his companions suspected the difficulties that lay in their way. Even to locate the site of the catastrophe was not easy: the local people feared the place where the god Ogdy bad descended from the sky and, witb his invisible fire, burned all who so much as dared to come near.

Braving numerous bardships, the little party moved oo along tracks made by wild beasts; they had heavy packs on their backs containing food, tents, blankets and drilling equipment to break tbrough the frozen soil. And later, when his companions, exhausted by illness and hard work, returned to Vanavara, Leonid Kulik stayed on.

Over tbe next few years he persisted in his searcb wbenever he could. Finally, in the bitterly cold February of 1927, having covered thousands of miles on foot, Kulik stood on the top of Mt. Shakhorma looking down on a fantastic scene.

To the north there was an abrupt break in the virgin forest surrounding the mountain. As far as the horizon, the trees had been felled as though by a sweep of one gigantic axe. Huge pines, fir trees, larcbes, broken and uprooted, lay pointing south-west. But as his guide, seized with superstitious awe, refused to go any further, Leonid Kulik had no choice but to return to Vanavara for the time being. But he would try again.

In the spring of 1928, hacking through almost impenetrable obstacles, Kulik, this time with a group of explorers, arrived at a depression surrounded by uprooted trees. The roots all faced towards one central point, and Kulik realised that they had at last found the epicentre of the explosion.

They returned to this place again and again. They measured the extent of tbe destruction. It was almost beyond belief: trees had beeo uprooted over an area of about 6,000 square miles.

The very first reports sent in by Kulik attracted universal attention to the Tungus phenomenon.

Kulik believed that the catastrophe had been caused by the fall of a giant meteorite. In those days his hypothesis appeared to be sound. However, it contained flaws: neither the débris of the meteorite nor a crater marking the point of impact could be found. Where were they?

The search brought almost no results. The tons of excavated earth did not yield a single splinter. Furthermore, instead of a crater like the one in Arizona, there was just an ordinary swamp of the kind so common in the Siberian forestland, with its permafrost.

But the most fantastic thing of all was that in the very centre of the destruction, where one would expect everything to have been flattened, tbere were dead trees standing, looking like telegraph poles, without branches or bark, but still standing.

The first doubts about Kulik's

theory were expressed. But having lent all his energies to the Tungus problem, and so many years to its solution, he was devoted heart and soul to his theory and intolerant of others.

At that time, his special authority on the subject was universally acknowledged.

He insisted that pieces of the meteorite had sunk into the melted ice of the permafrost, and thus the only remaining evidence of the catastrophe was the swamp and the wind-felled trees.

In 1938-39, aerial pbotographs were taken of the area. Further work was halted by the war. On the day Nazi Germany attacked the Soviet Union, Kulik volunteered for the front and a year later was killed in action near Smolensk.

☆ ☆ ☆

In 1945, the world heard about Hiroshima and Nagasaki. The first atomic explosions, with the flash and the mushroom-shaped clouds, bore a striking similarity to the Tungus catastrophe.

A few months later the Soviet magazine *Vokrug Sveta* (Around the World) carried a science fiction story called "The Explosion," in which the author of this article presented in popular form the following amazing idea:

"The Tungus body was a nuclear-powered spaceship from another planet, which exploded while trying to land in Siberia. The explosion was nuclear in character, and so left no débris. It occurred in the air and not on impact with the earth, and for this reason no crater could be found.

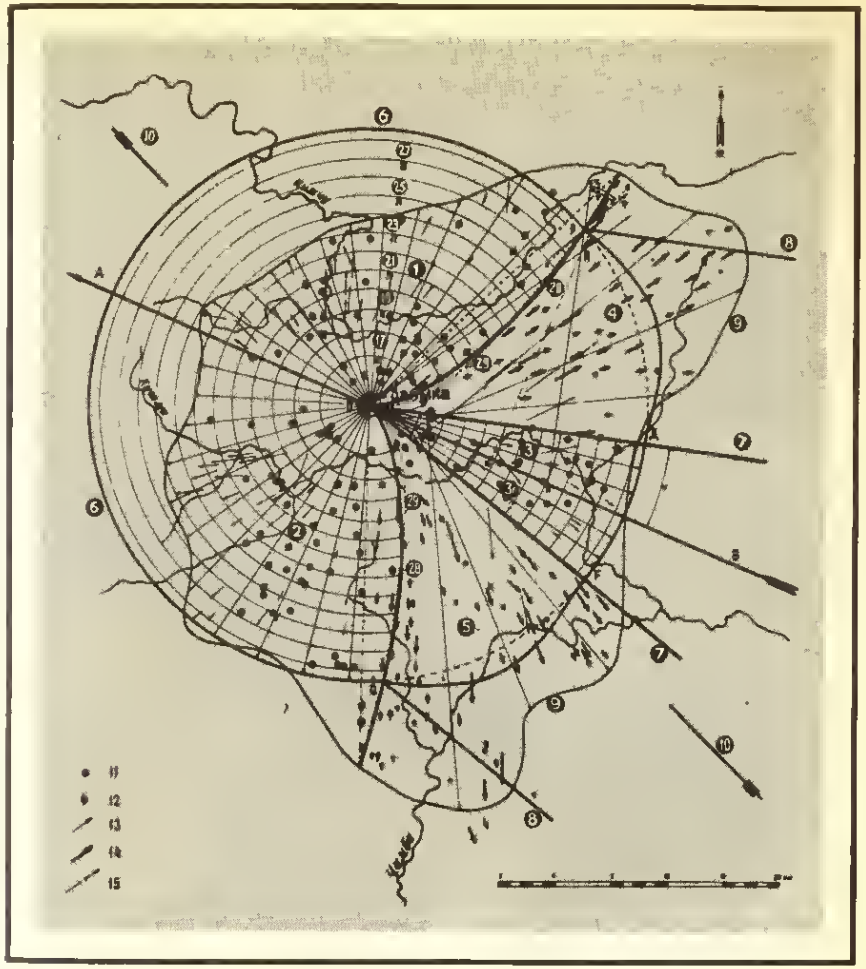
"This also explains the existence of the denuded upright trees in the ground zero area: the tree trunks directed perpendicularly to the front of the shock wave offered little resistance, and only lost their boughs, while trees that stood at an angle to the explosion were swept away within a radius of 25-odd miles."

There were naturally very few people who accepted this concept. Its adherents included the astronomer Felix Siegel *(known to SPUTNIK readers for his article about flying saucers in the December, 1967 issue).* At the same time, there were many celebrated scientists who vehemently opposed this new theory.

"It was certainly a meteorite, and not a spaceship," wrote Vassili Fesenkov, academician, and Yevgeni Krinov, a scientific secretary of the Meteorites Committee, in 1951. "The explosion of the Tungus meteorite occurred not at an altitude of several hundred yards above the earth, but on impact with the earth's surface. The crater thus formed was quickly filled with water. And so there is no enigma of the Tungus meteorite and the nature of its explosion leaves no-one in doubt."

Strangely enough, the non-scientific speculation of a fiction writer was much more in accord with the results of observation than a strictly scientific hypothesis.

Discussions flared up anew. Beginning in 1959, more expeditions were undertaken. Their members, mainly young people from Siberia, the Urals, Moscow and Leningrad, went to the



The pattern of the devastation in the area of the Tungus catastrophe has been minutely studied by the scientists. Here is a key to some of the symbols used on this diagram: **6***—limit of blast;* **7***—ballistic wave front at the instant of the explosion;* **8***—the same front on encountering blast;* **9***—limit of area in which trees were felled;* **10***—trajectory of cosmic body;* **11-12***—trees which fell in strictly radial direction;* **13-14***—trees which did not fall strictly radially;* **29***—line of intersection of blast and ballistic wave at successive instants.*

Siberian forests, often at their own expense and during their holidays. And they made discoveries which called for a re-examination of old concepts.

One of these groups, headed by Ghennadi Plekhanov and Nikolai Vasiliev, was of the opinion that the Tungus body was a giant clot of cosmic dust. Another group, headed by Alexei Zolotov, supported the "nuclear" hypothesis.

The Meteorites Committee of the U.S.S.R. Academy of Sciences (chairman, Academician Fesenkov) did not remain unmoved. In 1959, Kulik's trail was followed for the first time by a team of experts headed by Kyrill Florensky. He began a thorough scientific examination which lasted for several years. The results were set forth in lengtby reports, which concluded:—

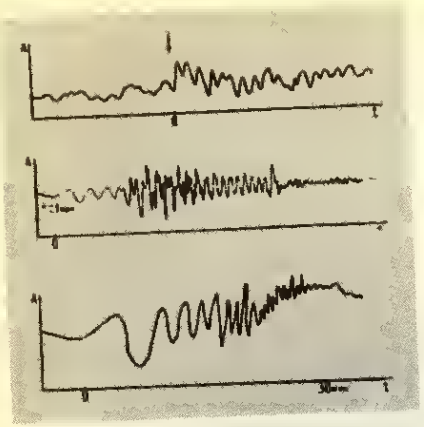
"The members of the expedition are satisfied that a meteorite exploded in the air." And these words belong to Yevgeni Krinov, who in 1951 had utterly refuted the "wild theory of the aerial explosion".

Later, Academician Fesenkov himself abandoned his previous theory in favour of the "comet concept", and held that the Tungus catastrophe could not have been caused by "an ordinary" or even a large meteorite. Thus, "no-one has any doubt any longer about the comet nature of the fall".

The words "no doubt" were used

Left: Saplings now soften the effect of the acres of devastation.

A clue in a tree trunk? The particularly wide rings in the trunk of this deciduous tree date to the first few years after the Tungus explosion. Possibly a pointer to radioactivity . . .



Micro-barograms of blast from different kinds of explosions: top, *ordinary (chemical);* middle, *nuclear;* bottom, *the Tungus explosion. The bottom graph bears far greater resemblance to the middle graph than to the top one.*

again. But this time they referred to a comet. So was it really a comet, or something else again?

☆ ☆ ☆

A comet entering the earth's atmosphere might disintegrate by evaporating in the air in a split second as a result of atmospheric friction. But according to Professor Kyrill Stanyukovich, such an explosion would be possible only if the Tungus body had hurtled through the air at a speed of not less than 18.75 miles a second.

This means that even with almost instantaneous evaporation, the body would have had to fly several miles before its disintegration. But the map of the devastated area drawn by the Meteorites Committee shows that almost all the felled trees lie in radial lines coming from one point. This means that the explosion was not linear in its nature.

True, the position of some trunks deviated from the strictly radial. Such dispersal is due to a combination of two shock waves. The first, the ballistic wave, originated before the explosion, when the Tungus body pierced the atmosphere like a projectile. The second was produced by the explosive disintegration of this body.

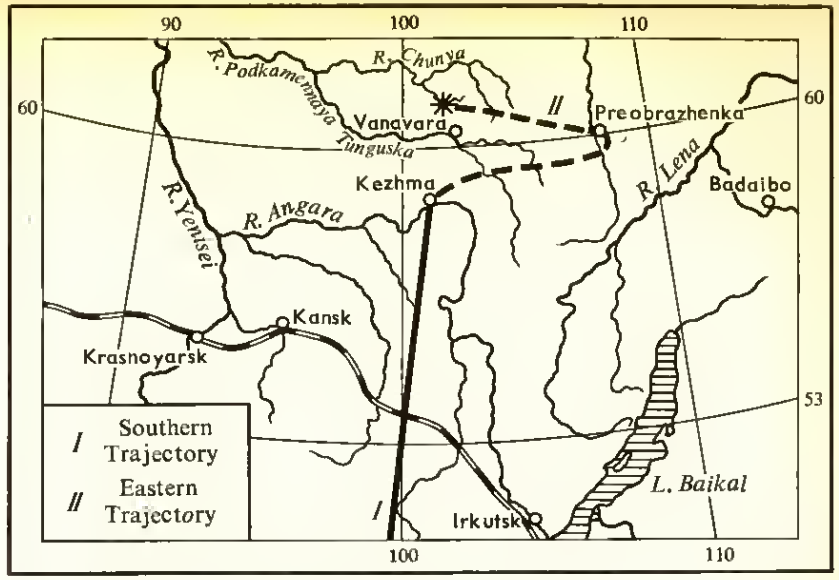
After all this data had been processed by an electronic computer, it became possible to calculate the speed of the flight in its last stage: between half and one-and-a-quarter miles per second. This is not nearly fast enough for the sudden evaporation of a comet head.

Perhaps the atmosphere was invaded by a clot of cosmic anti-matter? On meeting celestial matter (atmospheric gases) it would have caused the mutual annihilation of both matter and anti-matter, with an accompanying discharge of energy.

This hypothesis was put forward by the American scientist La Paz in 1948. In 1965, he was supported by American physicists, Nobel Prize winners Willard Libby and Clyde Cowan, and also by K. Atluri, who made a careful examination using the carbon testing method.

The publication of their work in the British magazine, *Nature,* quickened scientific and public interest in the Soviet Union. The weekly, *Nedelya,* followed up with an interview with the Soviet geologist Kyrill Florensky.

Florensky described the anti-matter theory as "more fantastic than



A map tracking the movement of the space visitor. The pattern is more characteristic of a guided apparatus than of a natural celestial body. "I" shows its "southerly" trajectory and "II", its "easterly".

scientific." He said at the time—

"The information and hypothesis of the Americans about the Tungus meteorite are not very convincing . . . Soviet expeditions have, over recent years, established that in 1908 the level of radiation in the ground zero area did not increase. It could well be considered proved that there are no grounds for speculation about a nuclear explosion. . . . It is quite possible that for the first time in human history we are dealing with a fallen comet and not with a meteorite."

The interview was headlined, "The End of the Tungus Mystery". But was it the end?

☆ ☆ ☆

The staff of the Joint Nuclear Research Institute met one day in 1965, to hear a written answer by Kyrill Florensky to Libby, Cowan and Atluri.

The conference was also addressed by Alexei Zolotov. He refuted Florensky's arguments. For example, it was found that the annual concentric circles in those trees in the Tungus area which had continued to grow since 1908, were much thicker than those rings that had grown before the explosion. Possibly their growth had been stimulated by some radioactive substances.

A barogram of the explosion obtained at Greenwich Observatory in 1908 led Alexei Zolotov to believe that it looked very much like the barometric readings from atomic explosions in the air at an altitude of slightly under four miles.

The material collected by Zolotov and his team caused Academician

Boris Konstantinov to "consider the possibility that the Tungus explosion was of a nuclear nature".

Now radio-chemists are carefully examining the ashes of the Tungus trees to obtain more facts. If it turns out that the explosion was set off by the fission of heavy nuclei (as in an atomic bomb), or by the fusion of light nuclei (as in a hydrogen bomb), it will then be almost proved that the event involved the participation of intelligent beings—extra-terrestrial designers who made an interplanetary flying machine. Natural explosions of this kind are inconceivable.

And what about the mutual annihilation of matter and anti-matter?

The Tungus explosion had the power-yield of a 10-megaton thermo-nuclear bomb. This would require an "anti-meteorite" of about 300-400 grammes only.

But what about the terrible ballistic wave? This certainly could not have been caused by so small an object. Its energy was about one-thousandth that of the explosion wave. But even then the shock wave could have been precipitated only by a very large body.

In addition to this, our solar system is not likely to have these clots of anti-matter, and it is highly improbable that they could have reached the Earth safely from some far-off galaxy.

All this suggests another possibility: perhaps it was the annihilatory engine of some stellar ship that exploded?

In the summer of 1967, the Joint Nuclear Research Institute published a paper by physicist Vladimir Mekhedov. It confirmed that one of the direct results of the Tungus explosion was residual radiation retained by trees. Mekhedov drew the following conclusions: "And again we (fantastic as it may sound), come back to the hypothesis that the Tungus catastrophe was precipitated by a spaceship powered by anti-matter".

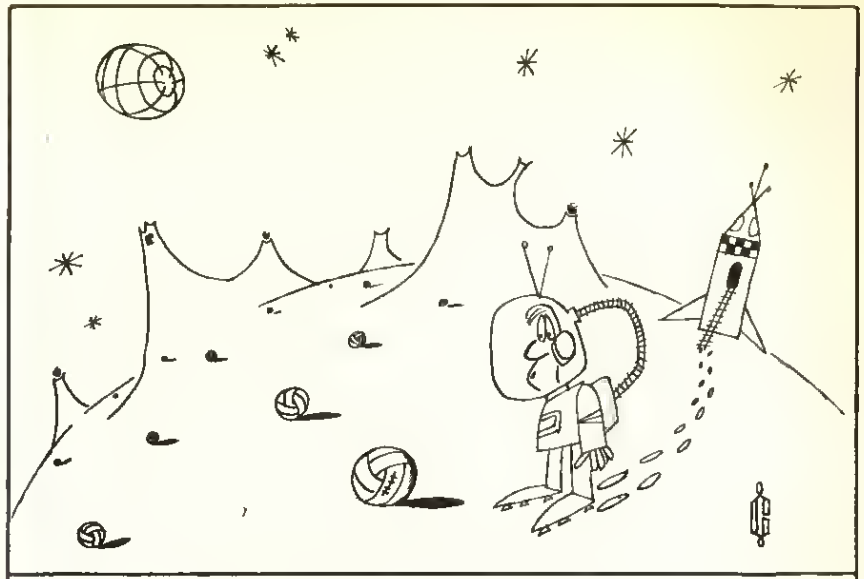
Until recently it was considered that the Tungus body had moved in the atmosphere from south to north. That was what eye-witnesses said. But the trunks of the fallen trees indicate that the body reached the point of its destruction from the east.

Soviet scientists Igor Zotkin and Mikhail Tsikulin re-enacted the catastrophe in laboratory conditions. A long fuse with a detonator at the end imitated the movement and explosion of the Tungus body.

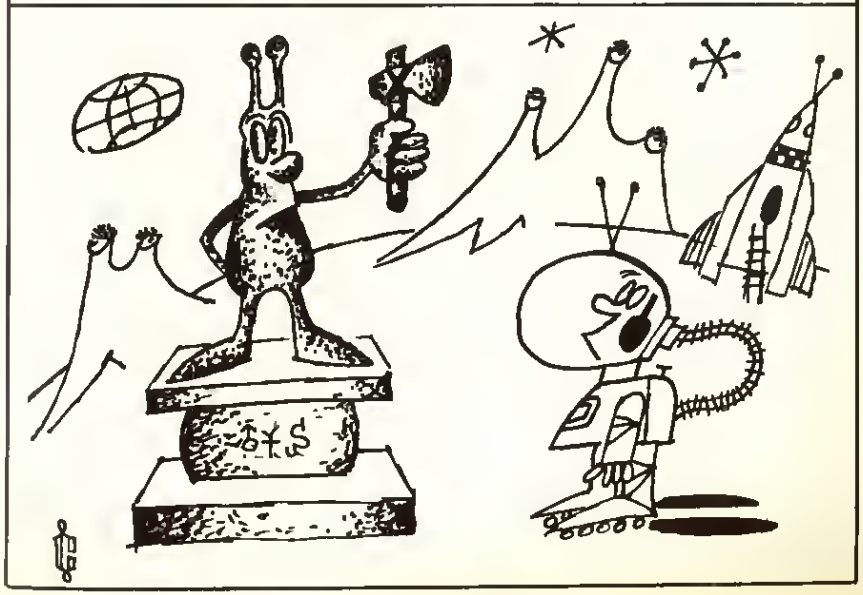
With the fuse in certain positions, the miniature trees fell in a pattern that resembled the pictures taken by aerial photography and land surveys. This gave Zotkin and Tsikulin reason to believe that the body had followed the easterly trajectory.

In 1966, Felix Siegel insisted that neither of the two trajectories could be ignored. Both are accounted for if one assumes that the original course of the Tungus body changed twice. This complicated manoeuvre could have been executed only by a piloted flying machine or by remote control.

So perhaps our planet was visited from outer space in 1908. The purpose of this visit is unclear; its outcome disastrous, and its scientific implications enormous.



Drawings by V. Sudarev.



I remember, I woke up one night with a feeling of impending catastrophe. I sat up in bed and began worrying about my dilemma. I was still awake, but no nearer the solution of my particular problem, when dawn broke.

The situation was this. Preliminary work on a picture that, according to all official documents, I was directing, was nearly finished. Paper kept piling up and my colleagues bustled about pretending everything was shipshape. But we were all aware that one key ingredient was lacking . . . we had no star yet.

Yes, the title role was vacant, and no wonder. For we needed a leading lady just 12 years of age, with acting ability to interpret a difficult psychological script: a young girl falling in love for the first time, suffering jealousy and wounded pride, feeling that the idol of her affections has rejected her, and deciding that life has lost all meaning.

Now where do you find a girl like that? A 12-year-old who can be entrusted with one year of our lives, the work of a 40-man team, a quarter of a million roubles and the reputation of a film studio?

From morning till evening we scouted the schools, the playgrounds, the parks. We stared at children in theatres, in the streets, in backyards. No luck.

Then someone at the studio had a brainwave—let's publish an ad. in the newspapers! Little did we know what we were starting.

How many children will respond to a newspaper ad. which states that

A STAR IS BORN

by Alexander MITTA
from the magazine
ISKUSSTVO KINO

From 35 to 40 feature films for children are produced yearly in the U.S.S.R. And children usually play the leading roles. In this article Alaxandar Mitta, author and film director, describes the trials and tribulations connectad with discovering and training child film stars.

a studio will interview 12-year-old girls for a starring film role at such-and-such a time on such-and-such an afternoon?

A hundred? A thousand? Two thousand? Twelve thousand! Maybe even fifteen!

Let me recall that nightmare in all its detail.

We had printed invitations for screen tests, and five of us planned to hand them out to likely prospects. We thought one or two hours would be enough to do the trick.

An hour before the appointed time, the square in front of the Kiev railway station (huses depart from there to the studio) was jammed with young girls. I reached the studio in a state of minor shock. Minor became major when I saw the enormous queue stretching around the entire building.

Our harassed watchman told me that the first girls had shown up around 9 a.m., though the ad. had clearly stated that the appointed time was 3 p.m.

More children kept arriving, hy hus and on foot. Some were merely excited, jostling and shoving and talking a mile a minute; others were on the verge of hysteria: I noticed one girl who had lost a shoe in the crush, and another who had torn her dress.

It seemed logical to call the whole thing off. But how? Simply announce that the role was already filled? They'd never believe me. The more naïve might leave, hut the rest would stay. And anyway, there was a certain moral issue involved. I didn't on any account want the children to feel they had been lied to in any way.

Below: "Somebody's Ringing, Open the Door" was announced as a comedy film, and although there is plenty of drama in it, there is plenty of laughter, too—mainly stemming from the child's view of the adult world.

Below: On the screen this sequence takes a couple of seconds. But while it was being filmed the heroine had time to get her nose frost-bitten!

So we tackled the task, dividing the first quarter of the queue into five sections of 700 girls each. Five of us led these contingents off in different directions. Thank heavens the studio grounds are spacious.

I asked my group to halt, handed out a few invitations and told the rest to leave. You think they listened to me? I was engulfed hy a protesting moh.

"Hey, give me a ticket, too!"

"Listen, why didn't you choose me?"

A fair question. Why didn't I choose her? I had simply passed out the invitations at random.

Incongruously, there was even one old lady in the crowd, dragging along an emharrassed young hoy. "Try my grandson for the role. He's got talent. Even plays the fiddle."

I had only one line of thought. Please, no hroken arms or legs. Please, let no-one get knocked down and trampled on. Please, I don't want that woeful-looking little girl to start crying.

But cry she did. She pressed her face to a tree trunk and began howling her heart out. In desperation I tried to calm her hy handing her an invitation and taking down her name and address. This did not produce the desired results.

"Look, that man with the specs signs up everyone who cries!"

And a horde of girls begin crying, caterwauling, shrieking and yelling their names and addresses. They

The first time she has been sent out of the classroom—and, as luck has it, the one she loves is witness to her shame.

were having a really wonderful time.

At 10 p.m., seven hours later, we bundled off tbe last child.

During the next month we conducted try-outs on the girls to whom we had given the invitations. Everything was orderly, organised. We were amazed by the number of talented—some very talented—girls. But we didn't find one suitable for the role.

Once, as I sat exhausted after a hard day of absolutely non-productive work, an elderly and extremely conscientious member of our team approached me and said: "You know, I have a grand-daughter. She's talented and . . ."

I didn't follow up. I didn't want to hurt the old man's feelings.

But time passed, and we still had no star. By now we were looking for someone out of this world, I suppose —a wonder child who would repay us for all our toil and trouble.

Eureka!

One day, after the old worker had approached me again about his grand-daughter, I weakened and told him to bring her around.

She really was talented, no doubt about it. Good sense of humour, loved to laugh, a great talker, small, thin, a few teeth still missing. When talking, she would swallow half the syllables and only a third of what was left was understandable.

In short, the exact opposite of what we were looking for.

But there was something about her . . .

To cut the agony short, I asked her if she would play the following scene: "Your grand-dad is in urgent need of a doctor. But the doctor is tired and needs a rest after performing a difficult operation. You must make the doctor go round to visit your grand-dad."

"Will he really do it?" she asked, hoping for a happy ending.

"I don't know. It's up to you."

We began, and she started whining and snivelling. I stopped the action and told her to try again. This time she interrupted herself: "No, I'm not doing it right."

She sat down, concentrated a while, and began all over again. There was something strangely moving about her performance. I watched her closely and saw that she was crying—her face was streaked with real tears. I felt terribly ashamed, torturing a little girl to tears.

Overwrought and tense, I stopped the scene and began to calm her. But she just wiped away the tears and began to laugh gaily. Then I realised that I had been taken in: she hadn't really been crying at all, only using tears as a prop.

Intuition had given her the right answer. What does a woman do when things don't go her way? She turns on the tap!

From that day on, the film's fate was in ber hands.

Work is work

In one short sequence in our film, the girl enters a door, walks up a flight of stairs, sits down and begins to cry. She bears footsteps coming down, gets up and moves on. She is wearing ice skates.

We shot the scene in an ordinary block of flats and our camera crew worked under difficult conditions. There was no room, the camera had to travel on rails and follow the girl.

The camera dolly looked like a rowing boat crammed with passengers from a sinking ship. One man kept his eye to the vizor, another focused to keep the girl's face clear-cut, a third turned the knobs of the tripod, a fourth held the electric cable and spotlight, and there was a fifth who, if I remember correctly, clutched at the others to prevent them falling over the banister. And a sixth was in charge of making one camera plus five men travel. See how many chances there were of something going haywire?

The girl's episode was difficult, too. She is supposed to have trouble opening the heavy door, then stumbling up the stairs on her skates. At the top, the camera moves in for a close-up, which means that her every movement must be measured to the inch. And when she sits down and begins to cry, the tears have to be real.

Up go the lights and we rehearse the scene a couple of times, which means another hour in the cold for our young star. A short break. All set. Get the cameras rolling. Open door, up she goes, sits down, turns her head —huge tears the size of peas roll down her cheeks. She hears steps coming down, gets up, stumbles along. Cut! Great! Perfect!

"We muffed it," says the cameraman. "Something went wrong with the camera."

Such things happen.

Second try. Perfect. Tears the size of walnuts.

"Everything O.K.?"

"No. Camera didn't travel far enough. Cut off part of her face."

Here we go again. Each new try means 10 to 20 minutes of waiting for preparations—lights, changing film in camera, getting camera back to its starting point, checking star's make-up. Our young star remains calm and self-possessed.

Third try. Everything is great: sbe sits down, cries, gets up . . .

The cameraman turns away, sits down and covers his face with his hands. This time the girl sat down too quickly, the camera lost her, then caught her again. No good.

No more tears

Our actress is upstairs, warming up in an apartment. The residents are terribly nervous and flattered—they are playing bost to a star!

At last we shoot the scene—let's hope it's good. For insurance, we should make one more repeat.

Alyonka—that's our actress's name—says: "Alexander Naumovich" (that's me), "inside I feel the scene, but I have no more tears."

"Drink some more tea," one of our men advises.

And then we do it once again.

. . . One winter evening we shot a scene on a Moscow boulevard. Alyonka sees three boys beating up her love. She charges down the hill and joins the free-for-all. During rehearsals the boys were real gentlemen: they hardly fought back. But

No-one got frostbite while this hectic scene was being shot out in the snow.

when the scene was being shot and they let her push them around, she cried: "They don't want to hit me! Tell them!"

"Go ahead, boys, light into her," I said.

The cameras rolled and everybody was happy, except a group of old people who, after watching the proceedings from across the street wrote an indignant letter to our studio: "In the evenings the workers of your studio force children to beat each other up for the amusement of spectators. All this is done under bright lights and in public."

After acting in our film, Alyonka was invited to star in another production. She appeared nervous, but when she stepped in front of the camera she said, "Let's not rehearse. Begin shooting."

The heroine of the film, Alyonka Proklova, with the adult star Rolan Bykov (centre).

The director, an elderly man, was outraged by such typically big-star airs displayed by a mere child.

"If you insist, all right," he said in frigid tones. "But first let me give you a few hints on how to play this scene."

"No, no, it's all perfectly clear to me," answered Alyonka with a charming smile.

Lights! Action! Camera!

"Why, that was very good," the director said with pleased surprise.

"No! Let's try again," insisted the child.

The scene was shot again, but this time Alyonka did her little turn-on-the-tears trick: it was a parting scene, and the tears made it perfect.

"Where did you learn that?" the director asked her.

"Oh," said Alyonka, "we learned all that stuff last year . . ."

The author was born in 1927 in Moscow. He first studied at a music school and then went over to the Literary Institute, graduating in 1958. The following year his first book of short stories, *At the Halt*, was published, and since then several more of his books have come out.

SHORT STORY
by Yuri Kazakov

December Interlude

He'd been waiting a long time at the station for her. It was a frosty, sunny day, and he was enjoying everything: the crowds of skiers and the crunch of fresh snow which had not yet been cleared away that day in Moscow.

He was pleased with himself, too —his sturdy ski boots, his woollen, almost knee-length socks, his thick fuzzy sweater and his Austrian peaked cap. But most of all he was pleased with the skis, beautifully waxed and held together with leather thongs.

She was late, as usual. Once this habit of hers had annoyed him, but it was the only weakness she had. Now he leaned his skis against the wall and tapped his feet on the ground to stop them freezing.

He looked in the direction she would be coming from and was content. Not brimming over with joy, just content. He was pleased and content that everything was going well at work, and that he enjoyed his work, that everything was all right at home, and that the winter was so wonderful.

It was December, but it looked like March with the sunshine and the glistening snow. And the main thing was that things were all right between her and him.

They had been through a terrible time of quarrels, jealousy, suspicion and mistrust, with sudden phone calls and long silences from the other end, during which one heard only a sigh or two which tore at the heart. Thank goodness that was all finished with, and now things were quite different—now he had a sense of

calm and confidence as he waited.

When she finally arrived he simply said: "Oh, there you are!"

He picked up his skis and they walked along together slowly, for she had to get her hreath hack. She was wearing a red cap, and strands of hair lay on her forehead. Her eyes were dark pools and on her nose were the first few tiny freckles.

He hung hack for a moment, getting out small change for the tickets and looking at her from hehind, studying her legs and thinking how attractive she was and how nicely she was dressed. He realised now that this was why she was late, because she always wanted to look attractive, and those apparently casual strands of hair were possihly not in the least hit casual. How touching she was, how anxious to please!

"Oh, the sunshine! What a wonderful winter!" she exclaimed as he got the tickets. "You haven't forgotten anything?"

He shook his head. Now it seemed to him that he had remembered a hit too much, for the rucksack was a terrihle weight.

The electric train was jam-packed with people with rucksacks, and the noise was really something. Everyone was calling out, shouting to one another, noisily occupying places and hanging ahout with their skis. The windows were cold and transparent, and it was good to look at the sunlit snow-covered expanses as the train sped along.

After ahout twenty minutes he went to the end of the compartment for a smoke. One of the doors had no glass in it and a cold wind hlew in so that frosty patterns formed on the walls and ceiling nearhy. There was a pungent smell of frost and iron, the wheels thundered and the cold rails droned.

He stood there smoking, looking through the glass door into the compartment, his gaze shifting from one seat to another. He even felt a little sorry for everyone there hecause not one of the passengers, it seemed to him, would have such a wonderful weekend.

He also looked at the girls, at their lively faces. He thought about them with a slight feeling of envy as he always did when he saw a pretty girl with someone else. But then he looked at her, and his spirits rose. He saw that here, too, even among all these attractive people, she was the hest of them all. She sat there looking out of the window.

Through the door that had no glass he stared at the frost, at the air, screwing up his eyes against the hright light and the wind. Creaking wooden platforms sprinkled with snow rushed past, and sometimes at a station there was a little plywood kiosk selling snacks; painted hlue, with an iron stove-pipe protruding through the roof and sending equally hlue smoke curling into the sky.

He thought how pleasant it would he to sit at one of those kiosks listening to the faint whistle of a passing train, warming oneself hy the stove and drinking a mug of heer, and in general how wonderful everything was: what a splendid winter, what joy it was to have someone to

love; and the one he loved was sitting in the compartment—he could look at her and receive an answering gaze.

How many evenings he had spent at home alone hefore he knew her; how many evenings he had aimlessly roved the streets with his friends, philosophising, discussing the theory of relativity and other pleasantly intellectual things—and when he had got hack home, how melancholy he had heen. He had even written poetry, and at the time his friend had liked it, for the friend had no-one either. But now his friend was married. . . .

What a strange creature was man, he thought. Here he was, a lawyer, already 30 years of age, and he had accomplished nothing in particular; he had invented nothing, he had not hecome a poet, or a champion, as he had dreamed of doing in his youth.

There was good reason for him to feel melancholy now hecause things hadn't worked out according to his youthful amhitions. But he was not melancholy: his undistinguished work and the fact that he had not hecome famous did not worry him at all. On the contrary, he was now satisfied and contented, and he carried on as though he had achieved all the things he had once set his heart on.

One thing kept running through his mind—what to do in the summer. He had begun to think ahout it hack in Novemher, wondering how and where to spend his summer holiday.

The holiday always seemed to him so endless, and at the same time so short, that he had to think it all out carefully in advance and to make sure of choosing the most interesting place, so that there would he no possihility of making a mistake.

He would spend a whole winter and spring making exciting plans, finding out where the best places were, what the scenery was like, what the people were like, and how to get there. And all these preliminaries were prohahly more enjoyahle than the holiday itself.

Now he was thinking of summer again and of how to reach some little river. They would take a tent, travel to the river; they would inflate their boat and there it would he, like an Indian canoe. . . . Good-hye to Moscow and its city streets, good-hye to all the court cases and legal consultations!

Just then, he remembered the first time they had been away together. They went to Estonia, to a small town where he had once been on husiness. He recalled their hus journey, how they had arrived at Valdai in the darkness, and the only sign of life had been in a restaurant.

The glass of vodka he had drunk had gone to his head, and on the hus he felt especially cheerful because she was sitting beside him, and in the middle of the night she dozed off from time to time, her head on his shoulder.

He remembered how they had arrived at dawn, and, although this was in the middle of August and Moscow was having a rainy spell, everything here was clean and bright in the light of the rising sun—white cottages, sharply pointed red-tiled roofs,

amidst an abundance of greenery, with tufts of grass growing here and there in the cobbled streets.

They found a light airy room smelling strongly of apples, which were spread out to ripen everywhere—on the window sill, under tbe bed and in the cupboard.

There was a wonderful market; they would go there together and choose some bacon, pieces of honeycomb, butter, tomatoes and cucumbers, and everything was fabulously cheap. And there was the smell from the bakers and the constant noise of the pigeons cooing.

The main thing was that she was there, at once completely unfamiliar and at the same time his beloved, near and dear to him. His happiness had seemed complete—but no doubt he would be still happier. As long as war did not come. . . .

Recently he often thought of war, and he hated it. But now as he looked at the glittering snow, at tbe woods, at the fields, as he listened to the droning and ringing of tbe rails, he felt confident there would be no war, just as tbere would be no death in general. For, he thought, tbere are moments in life when a person cannot think of anything terrible and cannot believe in the existence of evil.

They were almost the last to get out of the train. The snow crunched crisply as they walked along the platform.

"What a winter," she said again, screwing up her eyes. "We haven't had one like this for a long time."

They had about 15 miles to cover before they reached his cabin. They'd spend the night there and the next day would go skiing, and return to Moscow in the evening.

He had a little plot of land with an orchard and a clap-board cabin containing two beds, a table, some roughly made stools and an iron stove.

They put on their skis, jumped a few times, and stamped in the snow, sending powdery snow flying. They checked the ski fastenings and slowly moved off. To begin with they were anxious to go quickly, to get to the cabin as fast as possible, so they could warm themselves and relax, but it was impossible to move fast in these fields and woods.

"Look at the trunks of the aspens," she said and pulled up. "They're the colour of cat's eyes." He also stopped and looked.

Watery sunbeams slanted through the trees, and the snow hung like a veil between the tree trunks. They skied from knoll to knoll, from time to time sighting villages with tbeir white roofs. The stoves were alight in all the cottages and smoke rose above the houses in columns which then collapsed and spread over the patches of high ground in a blue haze.

They could smell the smoke over a mile away, and it made them want to reach the cabin as quickly as possible and light their own stove.

Now and again they crossed a road polished smooth by tbe runners of borse-drawn sleighs, and although it was December there was something spring-like about these roads, the wisps of hay and the transparent blue shadows in the ruts; something of the fragrance of spring.

Once a black horse galloped along the road towards the village, his coat glossy, his muscles rippling, the ice and snow flying in all directions beneath his hooves.

Now and again they saw a jackdaw, and once a swarm of robins which had a bizarre look amidst the frost and snow, like some tropical creatures. And once they came across the tracks of a fox, which zigzagged from one place to another before turning off and disappearing in the distance.

The skiers went on and on, and in aspen and birch groves saw the tracks of hares. These traces of the mysterious nocturnal life of the cold deserted fields and woods were exciting, for they evoked thoughts of the samovar bubbling away before the hunt; they put one in mind of sheepskin coats and rifles, of the glittering stars, and the dark haystacks round which the hares played by night and to which the foxes came, standing on their hind legs at times and sniffing the air.

In the imagination a shot rang out, there was a flash, and a fragile, fading echo resounded among the hillocks, village dogs barked and the still, glassy-eyed hare lay there motionless.

Down in the valleys and ravines the snow was deep and dry and the going was difficult. But the hillsides were covered with a frozen crust of snow, which made things easier. On the horizon the woods were suffused in pink light and the sky was deep blue: everything looked as though it went on for ever. So they skied on, up and down, resting now and again on fallen tree trunks and smiling at each other.

Sometimes he caught her by the neck from behind and kissed her cold, chapped lips. They scarcely said a word, except an occasional "Look" or "Listen."

But she had a faintly melancholy, abstracted air, and hung behind all the time; but he understood nothing and thought she was tired. He stopped and waited for her, and when she caught up and looked at him with some kind of reproachful, unaccustomed expression on her face, he asked her guardedly, for he knew how unpleasant the question would be to her: "Are you tired? Then let's have a rest."

"What do you think I am?" she replied. "It's just that I'm. . . ." She broke off in mid-sentence, lost in thought.

"O.K.," he said, and carried on, slackening speed a little.

The sun hung low in the sky, and only the fields on the very horizon still glowed pink in its rays. The woods, valleys and ravines had long been submerged in purplish-blue shadow, and the two lone figures continued on their way, he in front and she behind, and the rustle of the snow beneath their skis and the sound made as they thrust their ski-poles into the frozen crust pleased him immensely.

Once, over there in the rosy radiance beyond the wood, he heard a drone of engines, and in a minute or

so spotted a plane flying high. It was the only thing still lit up by the rays of the setting sun. There were flaming patches of light on the fuselage, and it was a splendid sight from below, in the frosty, silent twilight, with a picture in one's mind of the passengers sitting there thinking tbat at last they had arrived, they were almost in Moscow.

At last they arrived at the cabin in the gathering gloom. They stamped tbe ice off their hoots on the cold veranda, flung open the door and went in. It was dark inside, and seemed even colder than out in the snow.

She lay down straight away and closed ber eyes. She was flushed and perspiring from her exertions; now she was beginning to cool down, and was seized with a shivering fit. The least movement seemed a terrible effort.

She opened her eyes and in the darkness saw the plank ceiling and the rising flame in the paraffin lamp. She screwed up her eyes against the hright light and immediately the entire gamut of colours she had seen throughout the day—yellowish-green, white, blue, scarlet—began to swim before ber.

He got some firewood from heneath the veranda, fussed about the stove with a rustling of paper and finally lit it. She felt she wanted nothing in the world, and there was no joy for her in the fact that she had come here with him this time.

The stove became red hot, and the room warmed up. He took his things off, arranging his boots and socks hy the stove and hanging up his other things nearhy; sitting there in his vest, contented, his eyes closed blissfully, his fingers playing ahsently against his bare legs. He got out a cigarette.

"Are you tired?" he asked. "Get your things off, eh?"

And although sbe had no desire to move at all, hut simply wanted to sleep out of a feeling of sadness and depression, she obediently got out of her clothes and hung up her anorak, socks, and jumper to dry. She sat down on the hed in her jeans and vest and gazed into the flame of the lamp.

He pulled on his hoots, threw on his anorak and took tbe pail out on to the veranda, where it suddenly gave out a ringing sound. When he came back he put on the kettle and began to fish around in his rucksack, pulling out its entire contents and laying them on the table and the window sill.

She waited in silence until tea was ready, poured herself out a mugful, and then sat quietly eating a piece of hread and butter and warming her hands on the mug. She sipped her tea and went on staring fixedly at the lamp.

"Why are you so quiet?" he asked. "What a day it's been, hasn't it!"

"Mm . . . I'm so tired today." She got up and stretched, avoiding his glance. "Let's turn in."

"O.K.," he agreed readily. "Just wait a tick while I put some wood on the stove, or the place'll be like an ice-box. . . ."

"I'll sleep on my own tonight. Will it be all right here hy the stove? You won't he cross with me?" She spoke hastily and averted her eyes.

"What's the matter?" he exclaimed in surprise, and immediately recalled the sad, remote look she had worn the entire day. A bitterness welled up within him, and his heart raced.

It hit him with lightning clarity that he really did not know her at all—he did not know her life at the university, did not know her friends and what they talked about together. He realised that she was an enigma to him. Prohably, he thought, he seemed insensitive and unfeeling to her, because he could not fathom what she wanted and could not manage things so that she was always happy with him and needed nothing and no-one else.

He suddenly felt ashamed of today's outing, of this wretched cabin with its stove, even somehow of the frost and the sunshine and the feeling of pleasure everything had given him. Why had they come here? And where was this damnable, much-vaunted happiness?

"If you want to . . ." he said with an air of indifference. "You sleep where you like."

Without looking at him, without taking off the rest of her things, she lay down right away, covered herself with ber anorak and gazed into the fire. He sat down on the other bed, had a cigarette, turned out the lamp and lay down. There was a heavy feeling within him, for he sensed she was drifting away from him. Something had gone wrong somewhere, but what exactly it was he did not know, and he felt grim and miserahle about it all.

In a minute or so he heard her crying. He sat up and looked across the tahle at her. By the light of the stove he could see ber lying face-down, looking into the glowing wood, her face unhappy and tear-stained. Her lips and chin were wretchedly contorted with trembling. From time to time she wiped away her tears with a thin hand.

Why she was in such a terrible state today, she herself did not understand fully. She simply felt that the first flush of love had passed and that she could not go on in the same way any longer. She was tired of not really "helonging"—of having no status in the eyes of his parents and the rest of the family, and of all his and her friends. She wanted to be his wife, the mother of his children, hut he could not see this, and was quite content to carry on as things were.

She began to doze off, and the old day-dream with which she had been in the hahit of dropping off to sleep as a girl took over.

There was someone strong and courageous, and he was in love with her. She loved him, too, but for some reason she always said "No!", so he went off to tbe Far North and became a fisherman. She was left behind, love-lorn. In tbe North be hunted among the cliffs hy the sea, jumping from stone to stone; composing music; going to sea to fish; and all the time thinking of her.

One day she realised that he was her only happiness—she dropped

everything and went to him. She was so beautiful that everyone paid court to her on the way—pilots, drivers, sailors—but she had eyes for none of them, she could see only him.

Their meeting would be something right out of this world, so wonderful that it was almost terrible to imagine, and she kept inventing new reasons for delay, to put off that crucial moment. She would go off to sleep without ever meeting him. . . .

It was a long time since she had had this little semi-conscious dream, hut today she somebow wanted to lose herself in it again. But just as she had got a lift in a passing motor-boat her thoughts got confused and she fell asleep.

She woke up in the night, frozen stiff, to see him squatting by the stove getting tbe fire going again. His face looked sad, and a wave of pity came over her.

In the morning they were silent until breakfast was over. Then they cheered up a bit, got out their skis and went out into the snow. They climhed hills and skied down, seeking out ever steeper and more dangerous slopes.

Back at the cabin they warmed themselves, chatted ahout trifles, everyday things, and about what a wonderful winter it had been this year. When dusk fell they got their things together and made for the station.

They were both lost in thougbt as they arrived hack in Moscow in the evening, and as the big blocks of flats with their rows of lighted windows came into sight, he thougbt of how they'd he parting soon, and then suddenly had a mental picture of her as his wife.

Well, what about it? Early youth had gone—the time when home, wife, family and all that seem so mundane and unnecessary. He was already thirty. Here she was right next to him, an attractive girl and a good person; yet he might leave her for ever, just so that he might start all over again with someone else, hecause, after all, he was free. But tbere was nothing particularly comforting in this.

Tomorrow he'd spend the whole day at the legal offices, writing out appeals, drafting applications, giving thought to other people's troubles, especially their family trouhles. Then he would go home—to what? The summer would come, the long summer; there would he all kinds of trips with the canoe and the tent—hut with whom? And he suddenly felt he wanted to he kinder, to do the best he possibly could for ber.

When they came out of the station tbe street lamps were alight, there was the usual noise and bustle of the city, and the snow had been cleared away.

They both had the feeling that those two days had never heen, that the whole trip had never taken place. They sensed that they sbould part now, separating to their homes, and meet again in a couple of days or so.

Suddenly everything seemed so ordinary, so calm and easy to deal with, and they parted as usual with a hurried smile right there by the station.

MARRIAGE IN THE U.S.S.R.: FACTS AND FIGURES

by Anatoli KHARCHEV

From the book
Marriage and Family in the U.S.S.R.

Each year there are two million weddings in the Soviet Union, the highest rates occurring in January, February, November and December.

The annual number of marriages per 10,000 of population varies from country to country. In France, for instance, over the past few years, the figure has heen 71; in Poland, 72; in Great Britain, 76; in Yugoslavia, 83; in the U.S.A., 87; the Federal Republic of Germany, 88; the German Democratic Republic, 97; in Japan, 98; and in the U.S.S.R., 87.

Within the U.S.S.R. there are also variations. The Baltic states, the Urals region and the Northern Caucasus all have figures of between 80 and 90.

In the Kiev and Murmansk regions, the Maritime Territory (Far East), and Tajikistan (hordering Afghanistan) the rates are between 100 and 110; and on the Kamchatka Peninsula (which juts out into the Bering Sea), the rate is between 120 and 130.

Differences of this kind are natural. Intensive work is continuing to bring great areas under cultivation in the Far East. This, of course, means that they are being settled by more and more young people. Consequently the marriage rate is noticeahly higher there.

The number of marriages in particular parts of the country gives a good idea of the numbers of men and women of marriageable age who are

economically able to stand on their own feet and start a family.

What is the foundation of a stable marriage?

Here are the results of an inquiry I conducted at the Leningrad Wedding Palace. Altogether 500 couples were questioned. As a check, 300 more couples were asked to fill in questionnaires. Among those polled were students (28 per cent.), workers (21 per cent.), engineering and technical personnel (10 per cent.), and also scientists, doctors, writers, artists and soldiers.

This question was put to them all: "What do you consider the principal condition for a stable and happy marriage?"

The answers were as follows: 76.2 per cent. said love or love and common views, trust, sincerity and friendship; 13.2 per cent. said equality and respect; 4 per cent. plumped for love and good housing; 1.6 per cent. for love and a comfortable financial position; 0.6 per cent. considered that children were an essential condition, and 0.2 per cent. "realistic views on life".

The remaining 4.2 per cent did not reply. But even if one adds this percentage to those who put material conditions in first place, the "materialists" still do not amount to more than 10 per cent.

One should not, of course, conclude that there is a tendency towards asceticism. Random interviews showed that people getting married were fully aware of the importance of economic security to the family. But if there was any discrepancy or any conflict between the material and moral factors, they came down heavily on the side of the latter.

At what age do people get married?

A study of Leningrad records shows that there is a constant decline in the number of marriages where there is a considerable difference in the ages of the partners. The decrease is particularly noticeable in the incidence of marriages in which the husband is more than 13 years older than his wife.

In 1920, there was an age-gap of seven years in 31.5 per cent. of the marriages in the towns and 36.5 per cent. in the country; in 1940, the figures were 16.5 and 23; and in 1960, 13.5 and 11 per cent.

The difference in ages is generally six years or less (81 per cent. in Kiev, 84.5 per cent. in Tyumen and 89 per cent. in the Mginsk district of the Leningrad region). In more than two-thirds of the total number the difference is minimal (three years or less), or even non-existent.

It is interesting that in Kiev, capital of the Ukraine, brides of 20 or under account for 5.5 per cent. of the total, while in Tyumen, a moderate-sized Urals town, and the Mginsk district the figure is 16 per cent. This is evidently because in small towns and in the country there are proportionately fewer students, and it is youngsters in this category who mainly put off marrying, as they generally prefer to wait until they have finished studying. Then, too, in smaller places it is easier to cope with the housing problem.

The number of women getting married at the age of 33 or over amounts to 21 per cent. in Kiev, and only 16.5 per cent. in the Mginsk district. This may be because in the country there are far fewer remarriages than in the towns. Furtbermore, the numerical disproportion of the sexes which has existed in the U.S.S.R. since the war (in 1967, for example, there were approximately 19 million more women than men in the Soviet Union) is far more pronounced in the countryside.

In Central Asia, girls used to be given in marriage before they reached adulthood, and traces of the tradition lingered on until the thirties. In Uzbekistan, 35 per cent. of the brides were 18 years old or under in 1937, but in 1957 the figure was down to 12.8 per cent., and the downward trend is continuing.

How long do couples know each other before they get married?

A few decades ago, the overwhelming number of young peasants and workers getting married came from the same village or municipal district as their partners.

Industrialization and the cultural changes which have taken place have drastically increased the mobility of the population.

Between 1917 and 1967, the proportion of town-dwellers grew from 18 to 55 per cent. of the total population. Mobilization and the evacuation of millions during the war, and the opening up of new lands in the post-war period, have brought about massive population shifts. People from all over the country spend their holidays at resorts, sanatoriums, and so on.

Altogether, if one considers the influence of modern ease of travel, it becomes clear that young people today have far greater opportunities to meet youngsters from other parts of the Soviet Union, and thus a far wider range of choice of a marriage partner.

The questionnaires distributed at the Leningrad Wedding Palace revealed that many Leningraders were marrying Muscovites, or people from as far afield as Archangel, Omsk, Vladivostok, and South Sakhalin—the four corners of the U.S.S.R. Where did these couples meet?

At a club or the theatre, on the skating rink, at dances, and other places where young people spend their spare time accounted for 27.2 per cent;

21 per cent. met at work;

17.5 per cent. met at educational institutions;

9 per cent. had known each other from childhood;

5.7 per cent. met at parties in people's homes;

5.2 per cent. met through mutual acquaintances;

5 per cent. met on their summer holidays.

3.8 per cent. gave such miscellaneous answers as trams, trains, military hospitals, libraries and mathematical Olympiades;

1.6 per cent. met in the street;

0.7 per cent. made each other's acquaintance through living in the same hostel.

And 3.3 per cent. did not remember where they met.

So just about half of the marriages sprang from acquaintanceships unconnected with domicile, place of work or study.

This widening of the possibilities of meeting young people from all over the country has its positive and its negative sides.

By increasing the choice it also increases the chances of meeting a person who fits in with one's moral and aesthetic ideals. Yet it also involves a greater probability of random decisions.

Of course, people get a far better all-round knowledge of one another in the course of a prolonged acquaintanceship at work, at an educational institution or in the locality where they live.

Those questioned at the Leningrad Wedding Palace had known each other for the following times before marriage:—

A few days, 0.7 per cent.
A few months, 17.8.
1-2 years, 23.
2-3 years, 25.6.
3-5 years, 14.8.
5-8 years, 9.1.
From childhood, 9.

So in the majority of cases the bride and groom had known each other for a fairly long time (more than a year), and one must assume that they were quite certain of their feelings and had taken a serious, responsible decision. Only in one case out of five or six were there grounds for suspecting that the couple had not really got to know each other.

If life together becomes impossible . . .

In Leningrad, 42,600 marriages and 7,640 divorces were registered in 1959—that is, one divorce to five or six marriages. Over the U.S.S.R. as a whole there were approximately 13 divorces per 10,000 of population in 1960, or one to every nine marriages. In 1964 there were 15 divorces per 10,000 of population, or one to five or six marriages.

Comparable figures for 1963 for other countries are as follows:—

U.S.A., 22 per 10,000 (1 per 4 marriages); German Democratic Republic, 13-14 (1 per 6-7 marriages); Yugoslavia, 11 (1 per 7-8 marriages); France, 6-7 (1 per 11 marriages); the Federal Republic of Germany, 8 (1 per 11 marriages); Poland, 6 (1 per 11-12 marriages); Britain*, 6 (1 per 12-13 marriages); and Japan, 7-8 (1 per 13 marriages).

In 1965, the number of divorces per 10,000 of population in the U.S.S.R. increased to 16. Here, too, the great numerical disproportion between the sexes resulting from the war is a factor.

In 1966, the divorce rate almost doubled. This was because on December 10, 1965, a new law was adopted in the U.S.S.R. which much simplified divorce procedure

* Figures for 1962

and it became possible for the courts to deal speedily with cases which would previously have required a lengthy period.

The following year there was a drop in the numbers, and the decline is continuing.

Here is an analysis of the grounds cited for divorce in 1,000 cases heard in the Leningrad court:—

CITED BY THE WIFE

(given in percentages of the total number of petitions filed by wives).

Husband's drunkenness, 29.2; abuse and ill-treatment by husband, 26.6; husband's infidelity, 15; loss of affection for husband, 12.4; incompatibility of character, 9; husband convicted and sentenced to imprisonment, 3; love for another man, 1.4; sexual inadequacy of husband, 1; other reasons (childlessness, unwillingness of husband to have children, unjustified jealousy displayed by husband, husband's health—certain diseases constitute grounds for divorce—etc.), 2.4.

CITED BY THE HUSBAND

(given in percentages of the total number of petitions filed by the husbands).

Incompatibility of character, 30.5; loss of affection for wife, 24.5; wife's infidelity, 15.5; love for another woman, 12.3; wife's unpleasant attitude to husband, 7; quarrels with mother-in-law, 2.5; childlessness, 2.5; sexual incompatibility, 2.2; unjustified jealousy displayed by wife, 1.7; other reasons (wife's health, wife's drunkenness, bad housing conditions, etc.), 1.3.

Marriages between different nationalities in the U.S.S.R.

In the Marriage Laws of the old Russian Empire, it was forbidden for members of the Russian Orthodox Church or the Roman Catholic faith to marry non-Christians. For their part, Moslems were strongly against marriage to a person of another religion. This severely restricted the possibilities of marriage between people of different nationalities in Czarist Russia.

After the Revolution in 1917, the church was disestablished. Today in the U.S.S.R., which has people of 130 nationalities, big and small, there are no legal obstacles to marriages between people of different nationality or religion.

It is only civil marriage, not marriage in church, that gives husband and wife legal rights and, of course, responsibilities.

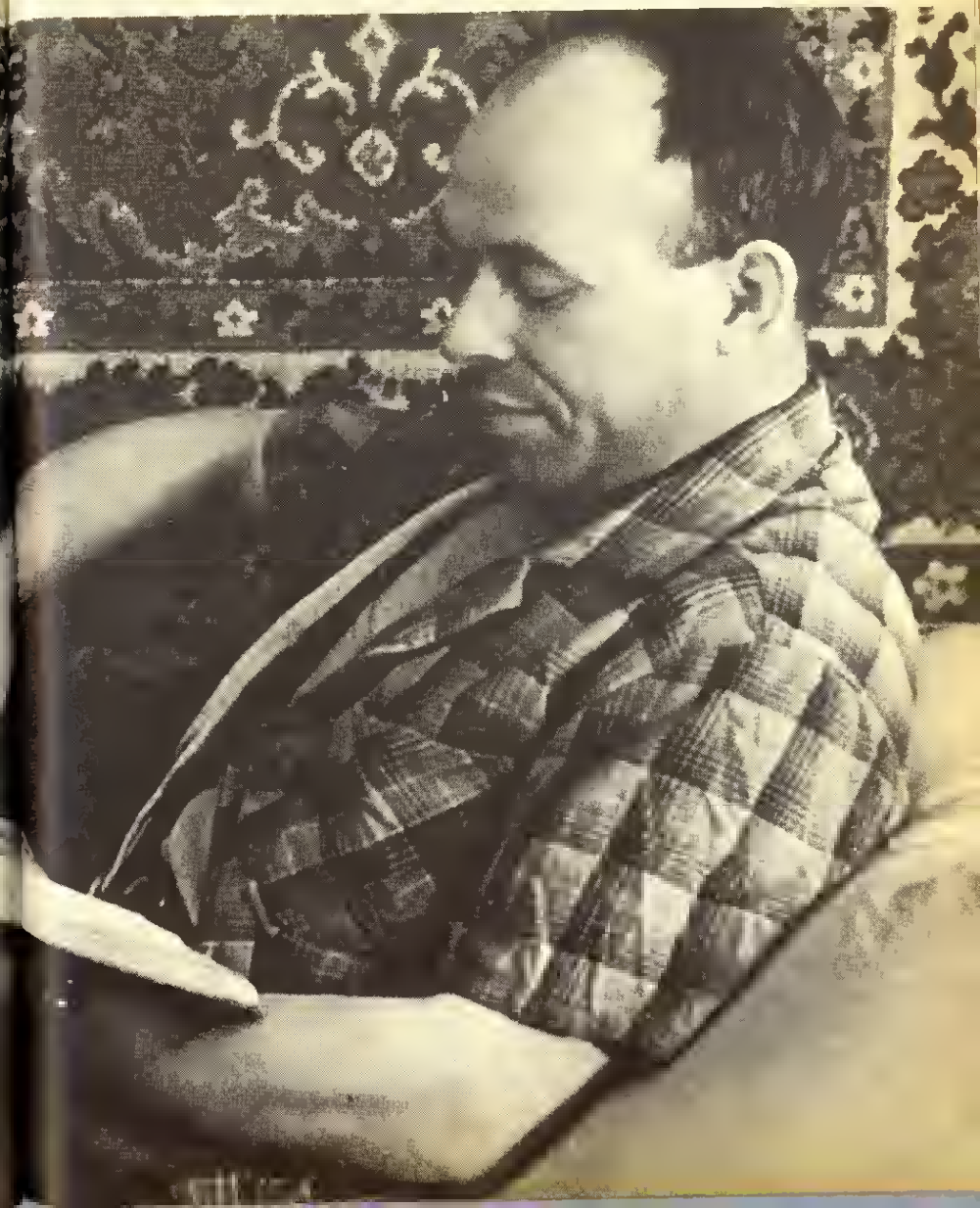
Marriages between different nationalities have now increased sharply throughout the country. In 1959, more than 20 per cent. of the marriages in Tashkent and Samarkand (Uzbekistan) were mixed, while the proportion in Leningrad in 1960 was 16-17 per cent. and in Baku (Azerbaijan) in 1961 it was 27-28 per cent.

In so-called mixed marriages there are, of course, big differences between husband and wife as regards tradition and general outlook. But this does not seem to make the marriage any less stable. In Tashkent, again, mixed families accounted for 20 per cent. of the divorces, which is in proportion to the number of mixed marriages.

Meet the Family . . .

by Elena KORENEVSKAYA

Mr. Ustinov: "When I was younger, I used to go out in the evenings and have a drink with the boys. Now I spend every spare minute with the family, and pity the poor devils who don't know the joys of a home."



We met him in a Moscow railway depot, our "typical" man.

"Nikolai Ustinov?"

"Yes," says the man, "that's me."

"May we introduce ourselves: we are from the magazine SPUTNIK."

"What can I do for you?" Mr. Ustinov shrugs his shoulders slightly. "I'm just an ordinary man, not a cosmonaut or a world skiing champion. So what's the point? I'm not even a deputy on the local council."

"That's exactly the point. We understand tbat you are a skilled fitter, that recently you received a new flat, and that you bave three children. So we've assumed tbat you must be a typical Soviet skilled worker."

Nikolai Ustinov grins broadly.

"I see . . . So I'm typical . . . A lot of responsibility, being typical, I'd say. In that case I'll have to think over every word. Everything I say is typical, too, I suppose . . ."

"We didn't intend to . . ."

"Well, I didn't mean any offence either. But you must understand me: you live for 40 years without realising that you're typical and then . . . All right, all right, wbat can I do for you? You want to see my family? Any evening you like . . ."

★ ★ ★

The flat of three rooms plus kitchen and batbroom is surgically clean; I would even say proudly clean, lovingly clean.

"It must take you a lot of time to keep your flat so beautiful?" I ask Nikolai Ustinov's wife, Tatyana Vasilyevna. She smiles her answer.

"You know, it's more of a pleasure than a dreary chore. It's my first flat and I'm in love with it. When I married Nikolai 20 years ago, we lived in barracks, in a workers' bostel with our bed separated from others by a folding screen. Then when Slava, our eldest son, was born we were given a room in a communal flat.

"I still remember how lucky we were. Just imagine: a separate room with only two neighbours sharing the kitchen, and with all modern conveniences!"

"But the last few years in the same room seemed to us miserable," her busband interrupts. "We couldn't talk about anything but a separate flat.

"You see everything is relative. My father and mother moved to Moscow from tbeir native village in 1932. There were eleven of us children, and I always sbared my bed with two brothers. So when I married this nice woman," (a nod and a smile towards Tatyana), "our conjugal bed seemed to me enormous."

"Stop, Kolya!" Mrs. Ustinov is evidently embarrassed. "Who's interested in your bed?"

"When did you move into this flat?"

"Only last year," Mrs. Ustinov tells me. "The railway depot, where Nikolai's been working since 1941, several times offered us two-room flats, but on the outskirts of Moscow. We waited and when Lenocbka, our daughter, was born

About the writer: Elana Korenevskaya is both journalist and Moscow housewife, and has two children. Her stories have been publishad by the North American News Agency, the Washington Post, the Sunday Times of London and a number of other Western publicetions.

they promised us a three-room flat and in a convenient district, and soon we moved here."

"And how did you get it, Mr. Ustinov? No doubt there are others at your depot who would have liked to have it?"

"Sure. You see, I'm an ordinary man, a worker, just a fitter—a skilled one, that's rigbt. So evidently the management, tbe trade union committee and the party committee, who together distribute bousing, took into consideration the size of our family and my long service—I've been working at the depot probably longer than anyone else."

"What's your monthly family budget?" I ask Mrs. Ustinov.

"Nikolai earns about seven roubles a day, that is 170 roubles a month. My wage as a dressmaker is 100 roubles a month.

"This is how we spend it—about 140 roubles a montb on food, 15 roubles on the flat, 10 roubles on the kindergarten where Lenochka is cared for and fed three times a day, 10 roubles on life insurance for Nikolai and me, which is more a form of saving, and five roubles on transport.

"The rest is spent on clothes, and entertaining once in a while, etc. No savings besides the insurance I've mentioned. We should like to put aside something, but with the new flat requiring a lot of things it's practically impossible."

"And this mahogany suite? How much did it cost you?"

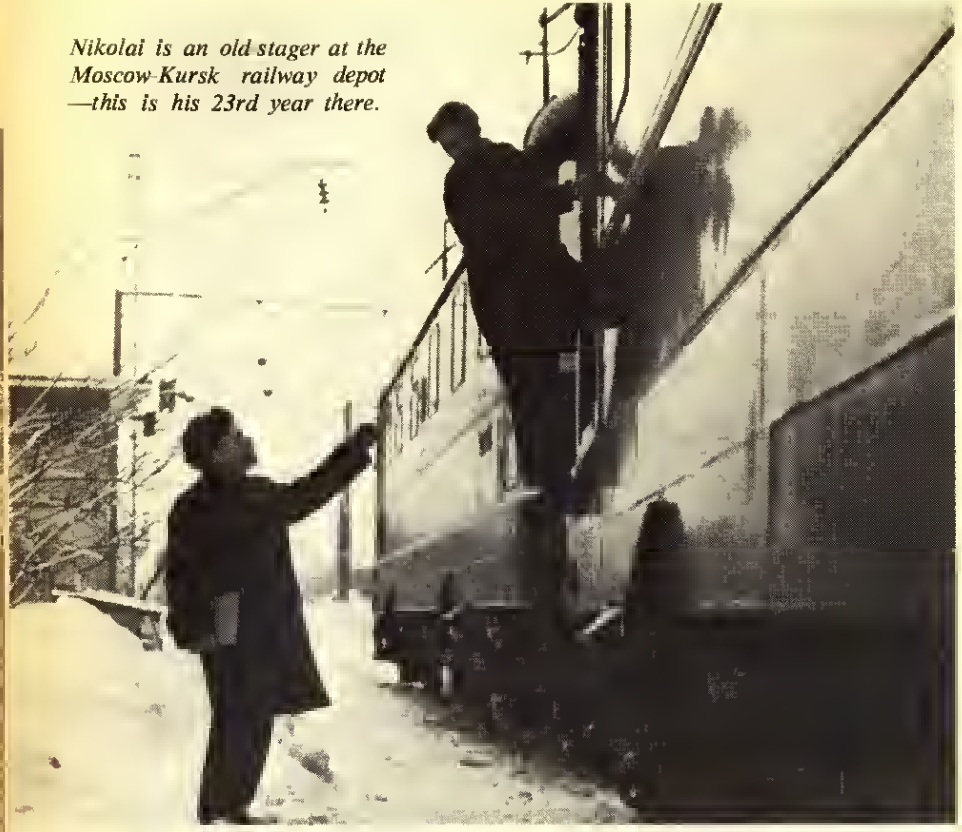
"Don't you think it's beautiful? It was 520 roubles. We bought it when Nikolai's short-term insurance policy fell due, and we cashed it. Now we plan to get a new TV set and, when Lenochka is older, a piano—but that's in the future."

"So just over half your family budget goes on food . . . Do you think that's a lot, or not?"

"Well, I know families where they save on food, but I'm against such an economy. I buy meat every day: my men are tremendous beef and pork eaters. We certainly can't afford fancy meals every day, but I'd say we eat well. We even had to buy this huge refrigerator for our platoon of eaters. It's just the right size."

"Mrs. Ustinov, how do you parents get on with your two sons?"

"You see, when tbe boys were



Nikolai is an old stager at the Moscow-Kursk railway depot —this is his 23rd year there.

younger, I didn't work. Although Nikolai then earned a little more than now, I had literally to count every kopek, and yet I think I was right to stay at home and bring them up properly. It has paid.

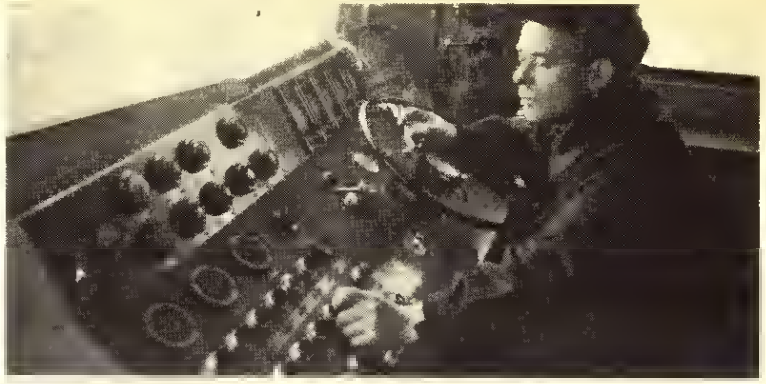
"Slava and Vitya are good boys. They are 17 and 15 but they don't smoke and they've never had a drop of vodka.

"Slava finishes high school this year and is studying like mad. He plans to enter the Radio-Electronic Institute, and last year there were six candidates at the entrance examinations for every vacancy there. I hope he gets in. He's been busy with radios since he was 12.

"Vitya is not so bright, and he plans to go to the radio engineering school, although there is also quite stiff competition for that."

"Bright, not bright—you're too

Continued on page 48



Above: A first-rate fitter, Nikolai Ustinov, 40, can handle most maintenance jobs. Here he is checking the panel of a locomotive.

"Trade secrets?", says Nikolai (right). "Only too pleased to pass on a few tips!"

Below: Nikolai is not a member of the Communist Party, but he is a trade unionist. Here he is talking to his branch chairman, Pavel Borschov, about the holiday vouchers issued by the union at 30 per cent. discount to members.

"Keep the child busy" is an Ustinov motto. One of Slava's pastimes is boxing. He is now quite a good middle-weight.

Above: Although as a dressmaker Mrs. Ustinov earns less than her husband, she is certainly pulling her weight—she makes all her own and Lenochka's dresses.

Right: The Ustinov boys and their young sister, Lenochka, enjoying the frosty air outside their new Moscow home.

Right: Their passion for radio does not stop the boys having other interests. With their guitar and accordion they are always welcome guests at any party they go to.

Left: The first New Year tree in their first separate flat.

Below: Father plays bear for his little Lenochka.

quick to pass judgment," Nikolai interrupts. "Don't forget that Vitya was ill for two years, had stones in his kidneys. The year before last he spent a month in bospital and last year he was operated on."

"Did you pay anything for the operation?"

"Not a kopek."

"And now he is all right?"

"Healtby as a bull, as we say. You should see him dancing."

Nikolai Ustinov laughs and winks at his wife. "Last night I saw them in convulsions in their room. 'What are you practising?' I asked them. 'Rock-'n'-roll?'"

"They laughed. 'You're out of date,' they said. 'It's the Shake'. Well, if tbey want tbe Shake, I'm not against it. And if they want to sing pop songs and play a guitar, let them, although I don't understand that kind of song. You see, I'm out of date. Typically out of date, perhaps I should add.

"Last time we all went off to the Black Sea together for our holidays (I'm a railwayman, so I bave free tickets once a year for me and the family) I used to stay out late in the evenings; I couldn't sleep, and I used to hear the boys flirting with the girls, talking, singing in the warm nights.

"They're really different from us. It's not only the songs, the beards or the bright shirts. They're gayer, freer, more sure of themselves than we are. It is only natural, of course, but sometimes I envy them . . ."

"Mr. Ustinov, now a rather peculiar question: are you content in general?" For a moment our host is silent, thinking.

"Well," he says at last, slowly, "you see, I haven't got a proper education. So I'm a worker, a fitter. And sometimes I feel sad because I've reached the top of my trade and that's the limit. It is not even a question of money—I make more than many young engineers with diplomas, but they've got a future and I shall die a fitter or a retired fitter."

"Don't be silly, Nikolai," his wife says with a frown. "You've got a nice flat, nice boys and a nice little girl. We're far from being rich, but our life isn't worse or harder than that of most of our relatives or friends."

"I don't know . . . perhaps . . . But I repeat, it's not a question of money. If I were given the chance to work overtime now, as I used to several years ago, I would refuse. It's not that I don't need it, but I also want some rest; I want to be with the kids. I'm already out of date for them, so I'll try to get to know them again.

"Perhaps my wife is right and I'm a bit silly. I have nothing to be afraid of, absolutely nothing, I'm secure, respected, the father of a fine family —but I wish my work were more exciting, perhaps challenging . . . giving me more satisfaction and a sense of fulfilment . . . If only I could have had a proper education . . . It's too late now . . .

"Now you understand perbaps why I'll do everything to give my children a good education.

"And we shall buy that piano for little Lenochka. We're sure we'll buy it."

MAILED FIST SHOP

Knights in the Middle Ages wore mailed gloves, thus providing work for armourers. We have all seen chain-mail gloves in historical museums.

Oddly enough, they are still produced today, in the second half of the twentieth century. A workshop for making mailed gloves exists at tbe Bronnitsy Jewellery Factory.

Nicknamed "the mailed fist shop" by the workers, Shop No. 3 produces 10,000 mailed gloves a month . . . for butchers!

Such knightly appurtenances are made in only two countries: the Soviet Union and Canada. But they are exported to many parts of the world. After all, butchers must safeguard their thumbs!

from the weekly NEDELYA

by Boris KHOLOPOV

Commodore Kesayev Remembers

from the weekly NEDELYA

The motor launch sped across the Bay of Holland to the Sevastopol Naval-Military Engineering School.

For 15 years the man beside me, Commodore Astan Kesayev, has headed a faculty in the school. Later we sat on a bench in the students' smoking-room and gazed at the panorama before us. Kesayev pointed out the waterfront district where he had lived as a young lieutenant before the war, the submarine base from which the sub he commanded during the war used to put to sea, the entrance to Sevastopol Bay and Konstantinov Fortress where the returning subs would fire a victorious salute. Kesayev and I strolled along Sevastopol's quiet streets and he talked about himself, about the war. In my mind the stories have run together, forming a monologue.

I admit that in re-telling his story it has become a little too smooth, too polished. How to convey the captain's manner of speech? It is fast and reckless, with the lilt of the Caucasian mountains. The captain waves his hands, his eyes gleam. I cannot do him justice. But let Kesayev tell his own story and perhaps you will catch something of the flavour of his speech . . .

Sometimes I look back on my life and think it has all been heaven and hell, hell and heaven, and nothing in between. And why was tbat? I wonder. Just the way I'm made, I suppose.

Anyhow, in my old age I suddenly discover that I'm an extremely emotional, excitable type witb fast reflexes. Who told me? Well, my liver began to act up. Lots of friends, wartime comrades, I love entertaining . . . get tbe idea?

So I went off to see a friend of mine, another naval officer, who is a first-rate doctor. He tells me that he'll have to check on my gastric juices. Which means I have to swallow one of those rubber tubes, which for me is as bad as plumping down on the sharp end of a bayonet.

However, in the cause of science and all that I say to him, "You stick the tube in and somebow I'll get it down". But as soon as he tries, my teeth clamp on his fingers, and that happens several times before we finally succeed. Then he tells me to lie down on a coucb and imagine I'm hungry.

I immediately picture succulent shashlik made from young lamb and the juices just well up inside me. "Enough," the doctor says. "Now imagine that you're eating a spoonful of dry mustard."

Well, that was the end of my juices. It demonstrated my emotional excitability and quick reflexes. The doctor even cited me as an example in one of his medical articles!

As far as I was concerned, I told my liver to stop bothering me and promptly forgot about it.

My liver got so mad that it ignored me, and that was the end of tbat little problem.

Anyhow, I'm talking to you as to an understanding man with a sense of humour.

The main thing in life is to be an optimist. If you always walk around

with a long face, the best thing that can happen is that you'll go crazy.

I come by my optimism honestly, from my Uncle Vasya who brought me up. There was no nonsense in the Kesayev family and my uncle always had a saying or proverb for all occasions. As a matter of fact, Uncle Vasya with his optimism is mainly responsible for the fact that I wound up in tbe submarines.

I wanted to be a geologist. After one year in the mining institute I was called in to the Komsomol District Committee and offered a chance to go to a naval scbool. "Tbe country needs submariners," I was told.

"I suppose the country doesn't need geologists!" I replied with beat. I was pretty mad, and went off to see Uncle Vasya. And what do you tbink he said?

"You don't know how lucky you are! You'll be the first submariner in the history of the Kesayev family. Quick, run and tell them you agree before they change their minds!"

And I've never regretted it.

At 23, a lieutenant, I arrived in Sevastopol with my bride. At the academy I used to dance the lezghinka* on my toes. I liked people and they liked me, though I was still a bit wet behind tbe ears. My wife, Valentina, is also Ossetian. We were betrothed when she was 15 and married when she turned 18.

Just before the war started, Valentina left with our son to visit her parents in Digora. She was caught there by the Germans. And when Digora was liberated by our forces, I was told that Valentina had been arrested by the Gestapo for helping the partisans and her fate was unknown. Our son was alive. . . .

Fate unknown! It was obvious she was dead. And she had been betrayed by a classmate, a traitor, a collaborator.

When the news about my wife reached me, no-one had to tell me to go to sea. I wanted to be in action every day. No matter how many fascists we sank, it was never enough.

My M-117 sub was commissioned in Balaclava in 1940. The crew of our "Little One" was outstanding. We took an oath at the beginning of the war: come what may, we would all stay with our ship. Needless to say, we kept out word.

We lived at sea. Two or three days at base to take on supplies, and then a month out. We ferried landing parties, contacted partisans, convoyed transports, sank German ships.

By 1943, the Germans knew that their time was up in the Crimea. The partisans in Kerch informed us tbat a ship carrying S.S. troops was preparing for imminent departure. Later, from official documents, we learned that they were special forces trained to fire on their own men if any attempted to retreat or surrender. Headquarters ordered that any landing at Odessa by this ship was to be prevented at all costs,

It was almost the first of May. We put out to sea and bung around. On the May Day we received a radio message—the troopship had sailed.

*A Caucasian highland dance

The Kerch partisans were well informed on all port activities: they had a bird's eye view from the mountains and we relied on them.

All that day we scanned the sea, but no Germans. The next morning we received anotber message from our comrades in the hills: transport on its way. And again that day we drew a blank. It was becoming obvious that the Germans were engaged in deceptive manoeuvres.

When on the third day tbe whole performance was repeated, I took it out on my radio operator, who calmly replied that he had accurately received all information transmitted.

May 5 was another boliday: Press Day. For the occasion we were looking forward to an extra-special borsch. And suddenly I heard a bysterical cry: "Captain! Captain!"

Our navigator, Alexander Dyomin, was at the periscope. He's a commodore now, too, and an associate professor in science. A very nice fellow, only a little on the calm and collected side. Even during the war he didn't drink or smoke, and managed to find time to study hydrology. Anyhow, I couldn't imagine what could cause that quiet boy to yell like tbat. Just as I was, wearing shorts and socks and nothing else, I dashed out.

He met me half-way: "Captain, the whole German fleet is heading straight for us!"

I peered through the periscope and saw a troopship of about 7,000 tons, its decks crammed with people. Surrounding it, 13 escort-destroyers were deployed, and slightly ahead of the convoy a Dornier plane skimmed the waves at some 600 feet, dropping deptb charges. In short, it was all very German, very thorough. The convoy was steaming straight at us, a bead-on collision course.

Attack was out of the question —the chances of hitting a ship coming at you dead-on are almost nil. We had to approach it broadside. If we came at it from the open sea, the ship's sonar would pick us up, but if we approached from the shore side, the usual surf noises would muffle our engine.

I calculated the time it would take us to slip under the convoy and tben catch up with it. We could just do it. Engines barely humming, we stole under and circled back, slid under the belly of a destroyer and, at a distance of two or three cablelengths, fired two torpedoes. We were so close, and tbe explosion so great, that our "Little One" sbuddered from stem to stern, the pot of borsch turned over and our bottle of vodka burst.

But now we had a real problem. As we had discharged two torpedoes simultaneously and hadn't bad time to take in water, the bow of the sub had bobbed up right in the middle of the convoy. The Germans all made for us.

I yelled, "Downstairs everybody and watch them sink us!" And believe me, at that moment I thought they would. Right in front of us the transport was going down. With all speed, we dived to the bottom.

For 10 hours they tried hard to get us. We counted 108 depth

charges. The only reason they gave up, I suppose, is that they ran out of them.

As soon as we were certain the Germans had left, we contacted our base. The reply was: "Maintain silence and await orders!"

Finally we heard: "The Military Council congratulates the entire crew on a brilliant victory. All personnel are awarded the Order of the Red Banner. The vessel itself is decorated with the Order of the Red Banner. The captain is named Hero of the Soviet Union . . . Dear Comrades, we are awaiting you."

That was the first time in the history of the Navy that the entire crew of a ship, from cook to captain, was decorated.

As soon as we entered the bay we roared the traditional cannon salute. The honour was given to our sonar man, Lyonya Sakharov, as he was the first to receive the Order. He is now a train driver on the Moscow-Vladivostok express.

The shore replied to our salute with a dazzling display of fireworks. Then we had a banquet—I can still remember the sucking pig.

Two days later we were back at sea. War is war!

Of course, I'm only recalling a small part of the story; the highlights, so to say. I suppose a week wouldn't do me if I started to tell you about all the different operations we carried out during the war.

After years of service I knew the Black Sea and its coast better than my own flat. We would surface, I would glance at the colour of the sea, sniff the air, and I'd know exactly where we were. The navigator would run a check and find I was never more than five miles out.

Odessa smells of raw fish—from the medicinal muds there. Poti smells of wet earth. But Sevastopol has the best smell of all pure and dry. It has been proved that the air of Sevastopol kills a myriad germs. As an example, I have suffered from all the occupational diseases of my profession—bronchitis, rheumatism, even the incipient stage of tuberculosis. Sevastopol's climate cured me of all of them.

I never want to leave this city. I have been offered better positions and higher rank if I would transfer, but I can't. The town is part of me. And my wife feels the same. You know we met again in 1945? If you wrote a book about it no-one would believe you, even though every word was true.

The Germans had sent Valentina to the Ravensbrück death-camp. And would you believe it, my cousin Alexei, Uncle Vasya's son, was Chief-of-Staff of the units that liberated that area. He was examining the list of released inmates when he ran across the name Kesayeva, Valentina. Imagine his feelings! And it so happens that Valentina is also his wife's cousin.

He immediately went to look for her, and soon she was sitting in his office. She weighed just over five stone. Before the war she was a beauty, 5 feet 4 inches tall and all curves . . .

Alexei placed her in the care of the doctors and cabled me the news.

Two weeks passed, and when I went ashore I was informed that a woman was waiting to see me. I saw this woman sitting on a bench. A complete stranger. Do you understand? I didn't recognise her! There was just something familiar about her blue eyes. Realising right away that I hadn't recognised her, she covered her face with her hands and started sobbing.

I suddenly came alive. "Valya, Valechka!"

And she said, "There's only one thing I want to know: did you marry again?"

She had been afraid to ask Alexei.

"No," I answered, "no, Valya, there's no-one else."

Then she fainted.

Well, gradually she put flesh on her bones and regained her health. Eventually we had a baby daughter, Lara. But the tattooed number on her hand and the "OST" on her shoulder are there to remind us. We won't forget, I assure you.

My daughter has grown into a fine girl, intelligent, has a sense of humour. She is living in Simferopol at my cousin Alexei's place and studying medicine. But I don't spoil her. I don't want her to have more clothes or more money than her friends have.

A couple of lads in the naval school almost fought a duel on her account, but I hope she doesn't marry too young—at least, not until she's had three years at medical school. By then no husband would be fool enough to interfere with her studies. But then I wouldn't allow her to marry a fool, in any case.

We had a son, Vadim. He was a student at a scientific instrument construction institute. In 1964 he was killed in an accident on board a scientific research vessel. Until then I had always taken the stairs two at a time. After his death, I started to run up and had a heart attack. Now I don't drink or smoke.

Well, enough of that . . . Look at these roses . . . Isn't it a beautiful city? I made a film about roses. I show the flowering of a red rose and a white rose. Did you know that roses only grow in the morning and evening?

I enjoy amateur film-making. I'm shooting a film now about starlings. In the early spring the starlings gather in the plane-trees near the theatre. Especially when the wind blows from the north for about five days, they don't move from those trees, just sit there and chatter.

I wanted to shoot some footage of the birds on the wing, and gave the local boys a rouble to get the starlings flying. In the meantime I climbed to the top of the Art Museum opposite and got some marvellous shots of clouds of starlings flying up into the blue and out to sea and back again to settle in the plane-trees.

Then I built little bird-houses just across from my balcony, and now I can film them in the mornings and evenings and on week-ends.

I've read more books about starlings . . . as a matter of fact, I could tell you more about starlings than you've ever . . . But that's another story.

SHY TIGER CATCHER

There are not so many tigers left to catch now. They prowled, until the end of the nineteenth century, in Asia Minor, the Transcaucasus, Northern Iran, Southern Kazakhstan and the Russian Far East. Tigers abounded in India, Burma, Malaya, Indonesia and China. Now, it is said, not more than 15,000 tigers are left in the world.

The U.S.S.R.'s tigers are mainly in the Maritime Territory, on the Pacific Coast—the Russian Far East. Hunting and trapping of tigers has been banned since 1956, but in 1966 the Maritime Zoological Station was granted permission for a litter to be brought in every winter for the U.S.S.R.'s zoos. Tiger-catching is a job only for experts.

by Victor SYSOYEV

from the book

LORD OF THE JUNGLE

Ivan Bogachov does not look at all like a tiger catcher—he's so kind, even shy. He is leisurely and deliberate enough in his movements to be taken for a gardener or beekeeper. But Ivan Bogachov is Siberia's most famous tiger hunter, and has caught 36 of these forest beasts.

At 70, Ivan knows every track in the Ussuri forests, is a crack shot, and takes some catching on skis.

He lives in a small log cabin close to the spot where the River Ussuri's exotic beauty is embraced by the mighty Amur.

One day at the end of December, Ivan received a telegram from Avdeyev, tiger catcher at the small trapping station of Obluchye, saying he had spotted the tracks of three tigers. Three of us—Bogachov, his nephew Prokopi and I—left for Obluchye, and were joined there by Avdeyev and Ferentsev, hunters of great experience.

The tigers' tracks were in the upper reaches of the River Sutara. The five dogs that pulled our sleds there looked like ordinary homely mongrels, but they were seasoned veterans of the tiger hunt.

We set out at dawn. In many places the snow was covered with footprints of boar and deer, welcome neighbours for tigers. We slept where the night found us.

"Look at all those tracks," said Bogachov. "The beasts must have done quite a lot of walking over there."

"But doesn't the tiger scare away boar and deer?" I asked.

"No. But he has to be cunning to catch them. He crawls up as near as he can, takes two or three leaps—and the next moment he'll be hanging on to one of them, claws sunk in deep. But if he misses he does not give chase: he's up a cedar tree, sinking his claws in the bark and tearing at the tree in fury . . . Then he's off to find other prey."

Prokopi said it was surprising to see tigers sometimes living side by side with herds of boar and deer, all around the same spring.

On the sixth day of our search, we spotted a fresh tiger track. It looked as if one tiger had passed by, but Bogachov said, "A tigress with two-year-old cubs . . . the mother in front, the little ones in single file behind, treading carefully in her tracks, I think."

We camped for the night, left our gear behind and went ahead with the dogs to run down the tigers next morning. The remains of a freshly killed boar confirmed that the tiger family lived nearby.

We were excited by the coming encounter—all of us except the old man, Bogachov. He sat calmly checking his main weapons of the chase: bonds of soft hempen rope and a canvas muzzle. Prokopi and Avdeyev inspected their blank cartridges. From among all our weapons we took along only shotguns.

None of us was sleepy, and everything was ready just before dawn. Bogachov, soft-voiced, shared his

remarkable store of tiger-lore with us.

"Two-year cubs are almost like full-grown tigers. A two-year cub could easily take care of us, one by one. But we're five, which makes a difference.

"Cubs, you know, won't help each other in a tight spot, but the mother will defend her offspring with particular ferocity.

"To avoid feeding our dogs to her—we'll get nothing without the dogs—the tigress must be driven as far away from the cubs as possible. Ferentsev will do this. He reads tracks well. I'll clamp on the muzzle. Prokopi will bind the right front paw, Avdeyev the left front. The hind paws will be your job. . ." His eyes lingered upon me, as if peering into the depths of my being. Would I do for the job in hand?

"Whatever you do, keep your head!" he warned. "Once you've got hold of the paw, hold on tight and drag it sideways. Main thing: watch out for those claws! Don't catch the paw too low: that's where the claws are. If he manages, Ferentsev will help you.

"As soon as we spot the tiger, Prokopi and Avdeyev will walk on the left of me and you on the right, all bunched together. Don't be frightened—the tiger won't eat you!"

We trailed the tiger as soon as we could see its tracks, and we went so fast that I began to sweat. After about five miles another track forked left off the main one. A cub had gone off on its own, Bogachov said.

"Run on a couple of hundred yards and start shooting!" Bogachov told Ferentsev. "Chase the tigress for a mile or so, and then let her go. Hurry back to the barking dogs."

Ferentsev set off in pursuit of the tigress and her other cub, and was soon out of sight.

In the deep forest silence I thought I could hear my heart beating. Soon there was one shot, then another. Ferentsev, we knew, was driving the tigress away.

"Well, here we go," Bogachov said. He turned off to follow the cub's lone trail. After about 500 yards he signalled with his hand for the dogs to be set loose. Hot on the scent, they flashed among the trees like balls of fur.

The old hunter now moved much faster. It was all we could do to keep up. We heard the dogs baying from the top of a steep hill. Sometimes they were quite near, but the uphill going slowed us down. We heard the tiger's snorts and snarls. Soon we saw the dogs at the foot of a leaning cedar. I stopped to take a look round, but could see no sign of the tiger.

Just ahead of me was Bogachov. He, too, stopped. His face changed as he spotted the tiger. He motioned us forward, and quickly threw off his heavy cloth jacket.

"There he is!" he said. "Now keep close. When he springs, I'll shove this jacket in his teeth. When he gets his fangs into the jacket, we all fall on top of him and spread-eagle him."

Bogachov moved forward stealthily. We followed, trying to see the tiger through the thick branches. At our approach the dogs went wild, baying and jumping round the tree.

I stepped from behind a tree and saw the tiger, flat against the trunk, roaring ferociously at the dogs. His jaws gaped and green sparks danced in his eyes. The long hair at the back of his neck bristled; his claws were sunk deep in the bark and glittered as if they had been sharpened.

The tiger gave a short snarl at the sight of us and, ignoring the scattering dogs, hurled himself at us. Then fear of man stopped the big cub in his tracks. He did not make the final leap, but hugged the ground, hissing through bared fangs.

I caught my breath as Bogachov moved slowly towards the crouching tiger, holding his jacket on a stick. Swiftly he thrust the jacket into the tiger's open jaws. The cub must have thought the jacket a living thing, for he instantly sank his fangs and claws into it.

That was what Bogachov had been waiting for. He leaped astride the tiger, nimble as a youth, and pressed him to the ground with all his might. The hunter held the skin on the tiger's nape in an iron grip. But the old man could not have ridden the tiger for long had we not rushed to his aid.

It was easy to see now why he attached so much importance to timing. Each of us did as he had been

The tiger can retreat no farther. In an instant he will spring, and then the men will enter the fray.

told, with full speed and assurance.

Prokopi pinned down the tiger's left paw with his knee and groped for the bonds tucked under his belt. Avdeyev, having done with the right paw, helped me to truss the tiger's hind legs. Pinned down, the canvas muzzle tight over his head and eyes, the tiger ceased to struggle. Only the convulsive lashing of his hlack and yellow tail on the snow showed there was still fight in him.

"Well, we've got him trussed up," Bogachov said. There was relief in his voice. "Now stand aside, hoys. The tiger will try a few tricks."

Sure enough, the tiger strained a few times at the ropes as if to try tbeir strength, and then circled on the snow in a fluffy yellow ball. But that could not last long. We gave the animal room and held hack the dogs, who wanted to get at him. Then the beast lay on the snow, defeated. We cut branches to make him a soft green bed.

Soon we had the fire going. After a quick cup of tea we set off to catch up with the tigress, leaving Ferentsev to guard the prisoner.

Half an hour later we saw a fresh boar track, but the tigress appeared to be too far ahead of us. We rejoined Ferentsev late at night and huddled round the fire till dawn.

We turned a pair of skis into a makeshift sled for the tiger cub, and set off bome witb our prize at daybreak.

And so ended what was for me a unique experience, and for Ivan Bogachov just another routine bunting trip.

Seized in the snow . . . now the tiger will change his address, from the wild to the circus or zoo.

Poet of the mountains

Poets call Daghestan the land of mountains. Situated in the eastern part of the Caucasus, it has 36 nationalities, some of them so tiny that they consist of the inhabitants of two or three villages. The largest of them all, the Avars (about 200,000), have produced two outstanding poets —Gamzat Tsadasa and his son, Rasul Gamzatov. Gamzat Tsadasa took an active part in the Socialist Revolution and was a pioneer of public education in Daghestan. His son, Rasul, was born in 1923. He was educated in Moscow, and on his return home became one of the most popular poets in Daghestan and the Soviet Union as a whole. A few years ago he was awarded a Lenin Prize.

* * *

Below we publish a few poems by Rasul Gamzatov, translated from the Russian by MARGARET WETTLIN

You bear your portion of life's
sorrow
With tearless eye, not giving way;
With like restraint upon the morrow
You can be supremely gay.

To what but the eagle's measured
flight
Can I your melodies compare?
To what your dances but the sight
Of a stallion charging, as on air?

I love your grace, your stateliness,
Your speech, so rich in imagery,
And none can know nor even guess
How dear is Daghestan to me.

Your heart, in mountain fastness
bred,
Where morning mists enwreath the
chain,
Shares not the narrowness of passes,
Is wide and open as the plain.

The feuds are done, the daggers
broke,
That once our fathers held so dear;
No more are you a backward folk,
Nor I—benighted mountaineer.

Now trains and planes extend
communion
Where late but horse and donkey
ran;
And I, son of so big a Union,
Still love my little Dagbestan.

The twentieth century frowns
disapprobation:
We, her children, have disgraced
her motherhood,
For never since the first day of
creation
Has the world been so flooded with
lies and blood.

The twentieth century smiles her
approbation:
We, her children, are acquitted in
her eyes,
For never since the first day of
creation
Has the world so battled blood
and lies.

For some the world is but a very
small
Melon to be sliced and succulently
ground
Between their teeth; for others it is
a ball
To be seized and squeezed and
kicked around.

Poet of the mountains

For me it is neither a melon nor a
ball;
For me the world is a beloved face
Whose blood I wipe off after a
brawl,
Whose tears, after a fall, I tenderly
erase.

In India they say the snake
Was first of all God's creatures
to appear;
Nay, God first of all did make
The soaring eagle, says the
mountaineer.

I agree with neither these nor those;
Human beings did come first, I
think,
Then some of them to soaring
eagles rose,
Others to crawling snakes did sink.

A shepherd told me once his day
Passed tranquilly from earliest morn,
Until one of his sheep did go astray
And find its way into the corn.

So lived I happily and busily beside,
Few cares, fewer vexations knew,
Until my heart did wander wide
And find its wretched way to you.

by Olga GORBOVSKAYA
condensed from the weekly NEDELYA

What is human memory?

To some people memory is a hard-won prize; to others it is a facility. Why? How much do we know about memory?

Memory is one of the least investigated human abilities. Like a living being, it has its character and its whims. All of a sudden it may come up with a picture of, say, the furry kitten you washed in a tub when you were six; or it may, equally unexpectedly, let you down at an examination over a formula you learned only two hours before.

Psychologists, philosophers, physicians and naturalists have been trying to penetrate this unexplored territory for centuries.

At the present time no-one denies that memory is a trace in the nerve substance of the brain. It is believed that nucleic and ribonucleic acids are involved in the process. But how does it actually work? Why are some people so much better at recalling and memorising things than others?

Several years ago it was reported that under hypnosis a girl had suddenly begun to speak some strange language, which experts later identified as one of the Hindi dialects. The girl had been born and brought up in Europe and had never known any Hindi and, when she came out of her trance, she was unable to produce a single word of the language she had spoken so fluently under hypnosis.

The only possible explanation seemed to be that memory is in some way hereditary and that some of the girl's remote ancestors must have lived in India.

Race memory

It may be that we are born with a memory of the things our ancestors knew and that for some reason they remain dormant while we slowly learn to speak and struggle with our multiplication tables. Could not this genetic memory, which only in exceptional cases reaches the surface of our minds, be put to work?

"The death of so much carefully

accumulated knowledge with the death of the individual is a great injustice of nature," says Soviet Physiologist Dr. P. K. Anokhin. He and other researchers believe ways can be found of stimulating memory mechanisms with chemical agents.

This theory is not so fantastic as it may seem at first glance. Michigan researchers in America developed a reflex to light in planarian worms. The worms were then chopped fine and fed to other worms. To everybody's surprise, the worms which had eaten their conditioned "kinsmen" developed the same reflex several times as fast as those that had not.

It could, therefore, be assumed that the experience they had acquired was stored in certain molecular particles and was not lost even after they had been digested.

Swedish scientist H. Hyden has proved that these molecular particles are again NA and RNA, the memory agents.

Extremely complex

Professor Alexander Shabadash, a Soviet scientist, warns against jumping to conclusions. His view is that the memory is an extremely complex process involving many stages that cannot be equated with the action of one or even several substances.

Other prominent Soviet scientists engaged in memory research include Professor Anatoli Smirnov, the psychologist, the physiologists Alexander Cherkashin and Iosif Sheiman, and the virologist Valeri Ryzhkov. After much controversy, Ryzhkov has rallied considerable support for his idea that the information which enters the organism is fixed there, not by chemical processes, but by the twisting or untwisting of various parts of the chromosomes of the cell nucleus. Changes of this kind may or may not be permanent.

Anyway, whatever theory finally proves correct, there are no doubt many surprises in store for us in the realm of memory. Who knows, perhaps the time will come when a pill will enrich people's memories with those of their forefathers? Nobody has, as yet, measured the potentialities of the human brain.

Maths marvel

A young Spaniard, Don Lizardo Sayans Ocampo, woke up one fine day to find that he could do wonderful things. He could add up extremely difficult sums in his head, solve equations with many unknown quantities, extract roots, take logarithms of 30 digits or more, and also repeat any list of names, even the full list of Spain's national lottery, or a most complicated musical score after one reading of it. Strangely enough, he acquired this amazing ability after suffering from a serious illness.

Obviously, the human memory has much greater capacity than we think it has. Possibly, one section of its storeroom holds the memory of our ancestors.

The volume of scientific information doubles every ten years. People need increasingly better memories even to keep abreast of scientific and technological progress. But our memories actually deteriorate as the years go by and the body tissues decay.

A number of foreign researchers support the hypothesis that memory resides and functions in what is called the Nissl substance. Every act of memorising requires the expenditure of some of this substance. The nerve cells of the brain, in the plasm of which it is contained, develop only during the first two years of life.

If this hypothesis is correct, the more often we use memory the less of it remains. Furthermore, thousands of neurons which contain the Nissl substance die daily. About half of the neurons die during the first 20 years of a man's life and another 30 per cent die between 20 and 80 years of age. Perhaps this is why old people are so forgetful, while children easily remember every new thing.

Every exertion of the nerve cells impairs their functioning. Consequently, by overtaxing our memory we can weaken it.

Don't try too hard

A German scientist, Professor Gliess, insists that a child's memory must never be overtaxed. Intensive memory training, he claims, often ends up by ruining memory potential. Some of the knowledge accumulated in childhood may be retained, but the price will be a vastly diminished memorising ability.

Professor Gliess is against memorising long poems, lists of historical names and dates and mathematical formulas, which fill the child's memory to capacity. "Synthetic memory" is always at our disposal in the form of reference books, encyclopaedias and dictionaries. We have only to learn how to use them properly and we shall avoid the danger of overstraining the memory.

Professor Gliess suggests that examiners should test, instead, the ability for creative and rational thinking. The use of reference books, dictionaries and tables should be allowed at examinations. What matters is for a student to be able to find the correct solution and find it in the quickest and most rational way.

Edison's secretary

Einstein held the same view. Professor L. I. Gutenmacher recalls an interesting episode. Edison once complained to Einstein that he could not find a good secretary. Einstein asked how he tested the secretary's fitness for the job. It turned out that Edison asked the applicant several questions. Einstein read the list of questions.

" 'What is the distance between New York and Chicago?' But that is to be found in the railway handbook," he commented.

" 'What is stainless steel made of?' But you can look that up in a handbook on metallurgy . . ."

Einstein's answers to the other questions were much the same.

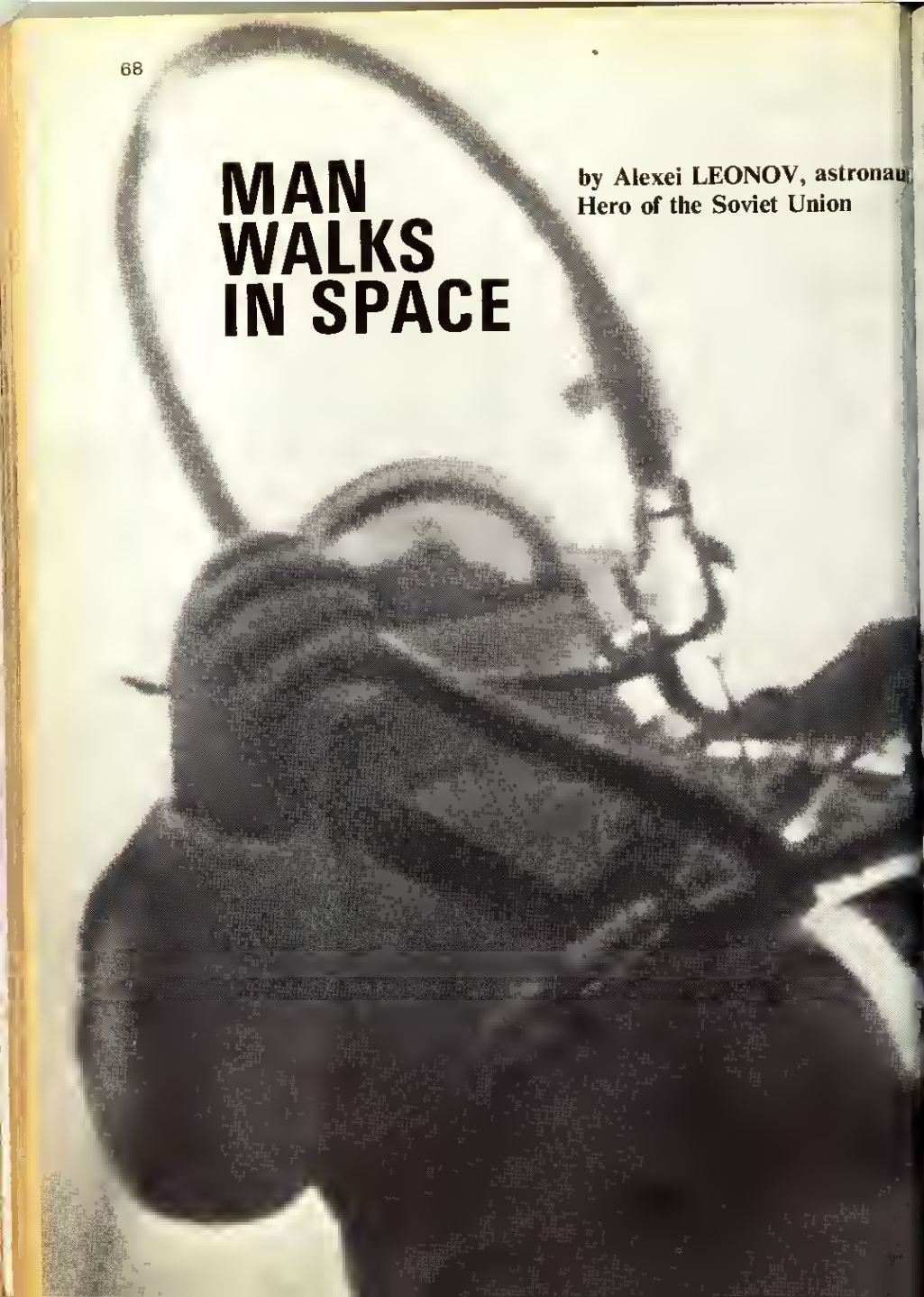
Many scientists, however, stick to the long-accepted view that the training of memory is much like the training of muscles, and that the more it is trained the more it will develop. Others maintain that memory must not be overtaxed.

The truth is yet to be established.

MAN WALKS IN SPACE

by Alexei LEONOV, astronaut
Hero of the Soviet Union

Condensed from
TEKHNIKA-MOLODYOZHI
(Engineering for Youth)



The whole group of us went to the design bureau to see a new space ship. I had already heard ahout it, and was thoroughly familiar with its layout. It meant a new job for one of us—but for whom?

It was a big meeting of the space programme commission. The chief designer went into details ahout the aims of the flight. Then they asked me to demonstrate an exit from the cahin through the air-lock on to the platform.

Me! Was it just chance? Or had they picked on me in advance? It took me some time to put on the space suit, take my seat in the cabin, and carry out the air-locking drill. I seemed to be doing everything in a hurry, and for some reason felt very nervous. Dozens of eyes were watching me—all the members of the commission and all my comrades. I was also nervous hecause I had to report, after testing the system, whether the operation proposed could be performed.

So we were to begin work witb a new space craft. We had to study it carefully, down to the last screw.

Making space furniture

We were casting couches. This was something new in training for a flight. A personally fitted seat-back was being made for each astronaut.

This is how it was done. First a mould box was made. Each astronaut, dressed in swimming trunks, lay down in the mould, and was strapped in and his position levelled.

And then the trouble really began.

A plaster mix was poured in at a temperature of 50°–55°F. They could not have it any warmer, because at a higher temperature it set too quickly. After the mix had been poured in, you had to lie and wait for it to harden. The position was very uncomfortable.

The worst, however, was when the time came to get out of the cast. Every hair on my body was an anchor cable, and there were too many of them, far too many. It was very painful climbing out of my shell; and it took me a good hour to wash the white mess off my body.

★ ★ ★

I had no luck.

The factory sent a message that my cast couldn't be used. It exceeded the planned dimensions. I had lain too luxuriously in the mould, it seemed. There was nothing for it but to go through the whole uncomfortable procedure again.

★ ★ ★

I was to be fitted for my new space suit. Its whiteness and the novelty of many of its elements surprised me.

I was ceremoniously dressed in my new clothes, and it was a bitter disappointment. Nothing fitted, especially around the waist. It was big enough for two people my size. Each one of us had tried to get a loose fit, and this was the result. My measurements were taken again quickly, so that a new suit could be made. This first one went for testing.

The second space suit was ready. The message came in the evening, and the next day I went to the factory.

It looked quite another suit. Everything was good—helmet, boots, and all the systems. Nothing pressed and nothing pinched. Nothing, that is, until I tried to sit down. Then the suit showed what it could do. It was impossible to bend my knees. When they checked up, they found the knee joint had been made about three inches too low.

There was only one thing to do—to use this suit for training and have another made.

But I had to do the adjustment the next day.

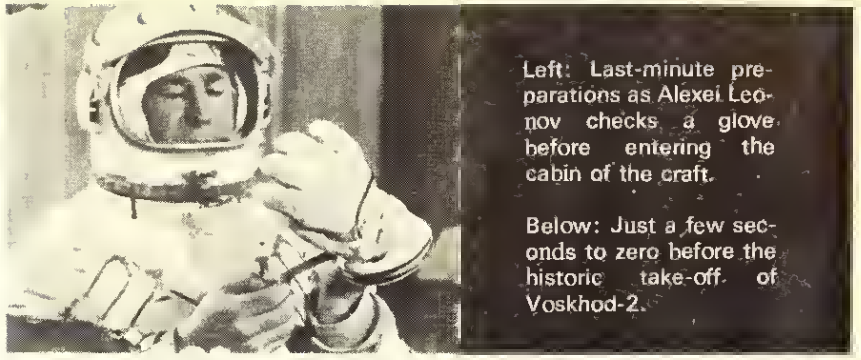
The third suit was made very quickly. I sat down in a pilot's seat, bent my knees, and was strapped in. The straps at the knees bit into my flesh like vampires. The pain was almost unbearable.

When I showed the weals on my legs to the experts, after getting out of the suit, they were very sorry for me. But much good it did me!

★ ★ ★

At last operation "Space suit—pilot's seat" was nearly finished. Today was the last round, casting a new back rest.

A perlon cover was put over my space suit, and I was laid in the mould box again and strapped down tight. Then the cameramen were given a chance to "work me over". I lay under blazing lights without air-conditioning, and had to smile. More than that. The cameramen objected



Left: Last-minute preparations as Alexei Leonov checks a glove before entering the cabin of the craft.

Below: Just a few seconds to zero before the historic take-off of Voskhod-2.

to filming my sweaty face; they needed mat skin, they said. But whether they liked it or not, they had to film me sweating, and show that to people. Space is hard work—not all grandstands, flowers and autographs.

The lads doing the casting took a long time mixing the plaster and pouring the sticky mess behind my neck. It was unpleasant, though this

time the mixture did not come in contact with my skin. Gradually I set into the mould—and the lads had to use a winch to get me out. That must have made an interesting sequence for the film.

★ ★ ★

Now we had to settle the important question of the hatch and the seat. When it was opened the hatch touched the seat, so it was proposed to make the second pilot's seat smaller. But then my shoulders would not fit: if they reduced the size of the seat, I was automatically off the crew list for that flight.

The alternative was to make the hatch smaller. But by how much?

It was decided to reduce its diameter by six inches. A ring of smaller diameter was fitted into the hatchway, and then I crawled through in my pressurised space suit.

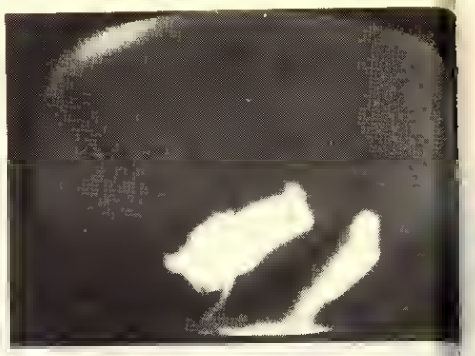
I just managed it.

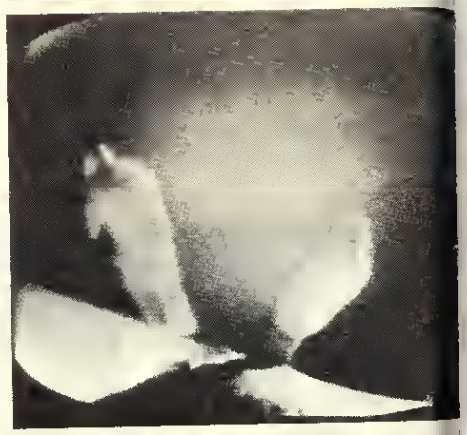
The black chasm

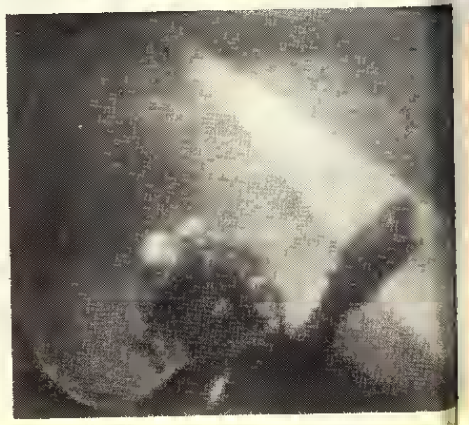
Wishing us goodbye before a flight, Professor Korolyov usually said to us, "Science needs serious experiments. If something happens out in space, don't try to set records. Take correct decisions."

Beyond the portholes of Voskbod-2 stretched a black chasm; but our cabin was softly illuminated by the light from our instrument dials. On the control panel of tbe air-lock shone tumbler switches with laconic legends: "AL Hatch", "AL Valve", "AL".

To the left of our seats I could see the hatch. We had crawled througb it







Left and below: Alexei Leonov in the vastness of space. . . . "I experienced an indescribable feeling of absolute freedom," he writes.

"A slight movement of arm or leg would send me spinning like a top or make me tumble head over heels, with no sense of what was up or what was down."

many, many times to "outer space" during ground training, and returned again to the simulated space ship cabin. Now it had to be done in orbit. We did not expect anything untoward, but any little thing might happen.

Our "globe" indicated that Voskhod-2 was completing its first orbit and approaching the south coast of Africa. The time to leave the ship was coming. The captain, Pavel Belyaev, helped me to put on the pack with the independent life-support systems.

Together, without hurrying, we equalised the pressure in the cabin and the air-lock. Then we closed our helmets, put on our gloves, and inspected each other carefully to see that everything was in order with our suits.

In a few minutes I would be in an absolute vacuum. All Belyaev's attention now was on the control panel, and mine on the air-lock hatch, which had suddenly become mysterious. A little excited, we opened the hatch.

"Go on!" Glancing at his watch, the captain gave me a light pusb.

The critical moment bad come. I cautiously floated through the round bole, bead first, into the air-lock, which was evenly lit by small frosted lamps.

Belyaev took a last look at my back and legs in their high, carefully laced boots, and closed the hatch behind me. He remained alone in the cabin. The left-hand pilot's seat was empty. An impenetrable wall seemed to bave come between us; but it was

only an illusion. We remained united by a common ideal, a common task and common thoughts.

Super-hard metal divided us, but I could bear my comrade's voice and feel the beating of his heart. He was my link with everything that was near and dear to me in life, with everything I had left on earth.

I knew that scientists and our fellow astronauts had their eyes glued to their watches, aware that any moment now a new, dangerous experiment would be performed in outer space. They were watching us from the sidelines and saw more than we did, just as fans at a football match see things the players don't.

Out in space we were calm and controlled, and they were excited and expectant.

I looked around the lock. Everything, down to the last detail, was familiar. My eyes rested involuntarily on the control panel for the lock systems, identical with the one in the cabin. If need be, I could work the lock myself.

"We're starting," said Belyaev.

The pressure in the space suit began to increase. It was a clever piece of engineering, consisting of several thin layers: thermal insulation, crash, air-tight, and ventilation. The engineers had tested a variety of materials in making it, from rubber and light metals to super-strong fabrics and plastics. When we are working in the suit, there is a continuous inflow of oxygen for breathing, and of air through the ventilation system to remove excess heat. Pressure is

Continued on page 76

This is how Leonov saw the Earth as he floated along beside his space ship at a speed of over 18,000 miles an hour.

maintained at slightly helow atmospheric level.

This light, comfortahle space suit had been put through a series of exacting tests to see that it would stand up to dynamic and static stresses, at high and low temperatures and in a vacuum. It had been subjected to radiation and ultra-violet rays, to humidity, to meteorite streams, and to multiple hending tests at low temperatures. Professor Korolyov had joked that in our "panoply" we could boldly challenge the unexplored forces of nature.

In the air-lock, I carefully checked the air-tightness of my suit and helmet once more, and the position of my smoked-glass light filters. When an astronaut goes out into the open sunshine of outer space, the rays could hlind him; hut we had every confidence in the light filters fitted in our helmets. Their quality had heen tested many times under powerful lamps with a spectrum close to that of solar radiation.

Belyaev and I were a hundred per cent certain of the reliahility of our ship and of our suits. Voskhod-2, if necessary, could stay in orhit for more than 30 days. Flights as long as that were still for the future, of course, but we had to he preparing for them already.

What was happening in the air-lock? There was complete vacuum already. The oxygen supply to the space suit was adequate. Once more I went over in my mind all the things I had to do next, and got ready to step out into space.

Several minutes had gone hy. The captain was about to open the outside hatch. The last seconds dragged terrihly.

"Opening," Belyaev informed me.

Face to face with space

The outside hatch opened on to a mysterious, unexplored world. A dazzling flood of intense sunshine poured into the confined space of the lock.

The filters came in very useful then, but even with them I had to screw my eyes up against the light. It felt as if I were looking through hlue spectacles at tbe seething steel in an open-hearth furnace, or at an electric welding arc. But that was only for the first moment; then my eyes hecame accustomed to that ahundant stream of sunshine.

Holding on to the walls of the lock with my hands, I approached the open hatchway and leaned out, thrusting about half my body outside.

In front of me yawned an ahyss. I looked down, towards the earth. It looked as flat as a pancake. Only at the edge of my field of vision could I clearly see a slightly curved line, all the colours of the rainbow.

"So the earth is round after all," I laughed gaily to myself.

Overhead the sky was dark hlue, studded with bright unwinking stars, scattered around the white-hot disc of the sun. It looked quite different from the way it does on earth—no halo, no corona, no rays.

Far, far below, under the space ship, lay the azure Mediterranean and the sandy coast of Libya. I gazed down on the gigantic hoot of Italy and on the isles of Greece. Outside the hatch I would he ahle to see even farther, so I instinctively stretched forward to take my first step into the unknown.

"Wait, it's not time yet," said Belyaev, stopping me. He was watching me on closed-circuit television. "We're coming to the Black Sea. Then you can go . . ."

A programme is a programme, and Belyaev as captain was responsihle for keeping to it exactly. Once more he made sure that I was all rigbt, and then gave the long-awaited order over the intercom.

"Go ahead. Good luck!"

As I floated out of the lock into the infinite expanse of the universe, I saw the indigo-blue of the Black Sea, the snow-capped peaks of the Caucasus, and the hazy bowl of Novorossiisk Bay. And off to the right I could see a cluster of white crystals—the sanatoria of Sochi.

Without haste I let go of the supports, first with one hand, then with the other, and finally with both together, and stepped back about eight incbes from the space ship. Then I returned to the lock and pushed smoothly off from Voskhod-2 and floated out to the end of the lifeline that fastened me to the ship, and which was attached to my suit in three places.

I experienced an indescrihable feeling of ahsolute freedom. Nothing constrained my movement in that bottomless cosmic ocean.

Hundreds of miles above the earth, a man was not falling hut floating along beside his ship, which was flying at a speed of over 18,000 miles an hour, and be himself was travelling at the same speed with no sensation of resistance or movement.

Only hy the rapid change of the terrestrial landscape as the ice-bound Volga gave way to the Ural Mountains, and then to the snow-covered forests of Siberia intersected by the Ob and the Yenisei, could I judge the speed at which I was racing through space.

A slight movement of arm or leg would send me spinning like a top or make me tumble head over heels with no sense of what was up or what was down. It was rather like bathing in the soft warm water of a salt lake, where you cannot sink even if you cannot swim.

The programme gave us a total of 600 seconds for the experiment, so we wanted to make the most of every second. Everything I did in open space could have heen done by the captain just as well; and if the need arose, he was ready to leave the ship and carry out the programme. And I had heen trained, too, to take command of the ship. But each of us stuck to his job.

Among his many concerns, Belyaev gave special attention to orienting the ship so that television screens on earth would have a good view of me, and so that it would be clearly lit hy the sun. And while relaying my radio conversation to earth, he listened carefully to each phrase to judge how I was feeling.

I was making more and more new movements. I tried reaching the ship:

the lifeline was stretched to its full length. I pulled on it and soon had to put out my hands to fend off the rapidly moving bulk of the ship, which weighed six tons on earth.

"I musn't bash my helmet on the side," I thought to myself. But nothing happened. Floating up to the hatch, I easily deadened the impact with my palms.

That went off easily; it meant that with training one could make precise, co-ordinated movements in unusual conditions. That was particularly important for those who would be sent to assemble satellite space stations and cosmic laboratories in orbit.

I tried imitating some of the movements the fitters would have to make. I unscrewed the cover-plate of the camera fixed to the outside of the ship. Where was I to put it? Could I put it into orbit? I swung my arm and threw it towards the earth. The small object, glittering in the sun, moved rapidly away and was soon out of sight.

I carried out another easy, but very important, experiment. The slight effort I had made in pushing off from the side of the ship had had a minute effect on its flight attitude. Voskhod-2 had moved away from me, as it were. I tried this again several times. Each push on the side of the ship produced a sound inside, and changed the flight attitude.

Inside the ship was another camera, which was filming my experiment.

Time was flying fast. I wanted to stay outside longer, hut the programme was the programme, and Belyaev told me it was time to return.

I took a last look at the space ship flying against a background of shining constellations. It looked much more majestic and beautiful than it did on the ground. It was the crystallisation in geometric shape of concentrated human thought. Above its hull projected radio antennae; and watching me as I hung in emptiness were the lenses of television cameras.

The silence was all-pervasive, but in my ears I seemed to hear mysterious, unearthly electronic music.

My parachute ripped off —but I lived to tell the tale

by Sergei KURZENKOV

from the newspaper MOSKOVSKI KOMSOMOLETS

SERGEI KURZENKOV, FORMER FIGHTER-PILOT, HERO OF THE SOVIET UNION, RELATES THE INCREDIBLE STORY OF HIS ESCAPE FROM DEATH DURING THE SECOND WORLD WAR. KURZENKOV IS ONE OF THE NINE CITIZENS OF THE U.S.S.R. WHO HAVE RECEIVED THE U.S. ORDER, THE NAVAL CROSS.

"There's a job for you. You are to locate and radio the location of the German night-bomber air base. When you pinpoint it, bomb it. Our bombers will follow. Not a single Nazi plane must appear over Murmansk tonight. Valuable military equipment is being unloaded in the port. Any questions?"

I had no questions.

Somewhere behind me, shrouded in the night, lay the hills and valleys around my base. I was flying at 12,000 feet.

I crossed the front line and started searching for the enemy field that I knew was there. Not a light, not a gleam—nothing but the impenetrable dark.

I set course for the north. Below, I could see the most

northerly town in Norway, Kirkeness, which was occupied by the Germans. There was no indication of an operational airfield in the vicinity. My fuel gauge showed me that I was rapidly approaching the point of no return. I turned hack, assignment unfulfilled.

And suddenly ahead of me, and considerahly lower, three lights, red, green and white, hlinked. A bomber! It must have heen damaged, but had managed to get hack to its home base and was requesting permission to land. As the thought crossed my mind, I saw a Junker-88 landing in the hroad heam of a searchlight.

The Nazis now had nothing to lose, and the ack-ack guns opened up.

Eyes fixed on the bomb-sight, head down into my shoulders, I dived sharply at the lines of sitting Junkers I could see illuminated hy the firing of the guns.

And suddenly a flash, and searing pain in my leg. My plane was on fire.

I pushed the button and released my bomhs. In a few seconds, explosions—and two Junkers were aflame.

I put the plane into a sharp climb. I was in a hurry and so were the ack-ack gunners. A plane on fire made an excellent target. I shall never know how many shrapnel splinters and bullets hit my plane, but I managed to escape from the range of fire.

I heaved a sigh of relief and glanced at the instrument panel but . . . instead of shimmering dials, a hlack void yawned at me and the entire panel, ripped off by the blast, rocked back over my legs.

My radio! Was it out of action as well?

"This is Sokol (Falcon) calling Kazhek! Sokol calling Kazbek! Airfield in operation Square N. My plane on fire, am wounded. Set me on course. Over."

"Kazhek calling Sokol! Kazbek calling Sokol! Read you. Repeat. Course indicators in action. Give call signs. Over."

I repeated my message and gave the call signs to enahle the course indicators to tune in.

"You're swerving to the right . . . lap 40 left! Lap 40 left! Got it?"

I zoomed on for home. Visihility dropped. I could hardly discern the stars by which I had guided myself —smoke had hlackened the glass of the cockpit.

I pressed the emergency lever. No sooner did the hood open than onrusbing wind tore it off. Flames from the wing hegan to lick their way into the cockpit. To protect myself, I seized the controls with my left hand and shielded my face with my rigbt.

The entire wing was now aflame. I was considerahly weakened by loss of hlood. I made up my mind to bail out. I tried to pull myself out and roll overboard, but did not bave the strength to fight the air-resistance, and I slumped back.

"I'm going to hurn alive," I thought. I caught hold of the stick and jerked it sharply to the right. My plane, still responsive, banked sharply and turned belly-side up. My head downwards, I gave the rudder as forceful a push as I could.

It threw the plane, burning like

Sergei Kurzenkov as he looked during the war years.

a torch, straight up and tossed me out of the cockpit.

While my hand was searching feverishly for the parachute ring, I saw my fighter heading in my direction, spitting sparks and fire all around.

To open the parachute just then would have been suicidal. I had to "free-fall" until the plane was safely past and attempt to measure the distance of my fall by counting seconds.

Ten . . . twenty . . . thirty . . . I must have fallen about 6,000 feet. It took an enormous effort, with both hands, to rip out the parachute ring. The parachute opened with a jerk that tore off my fur boots, which had been fastened to my belt, as well as my left gauntlet. But at that moment I cared nothing for the 22 degrees below freezing temperature. The one thought throbbing in my mind was "I made it!"

And suddenly terror gripped me. I rolled over on my left shoulder in time to see the life-saving canopy floating away.

I found out much later that the parachute straps had been severed by shell splinters and, naturally, had given out under the strain . . .

Down, down, knowing that now nothing could save me.

Crash. Blackness.

I must have lain there long hours unconscious. When I came to, I tasted blood. Deliriously I sprang to my feet, but slumped to the ground again.

Smashed and bleeding, I lay in the snow with no hope of being rescued, even though I knew the airfield was only a short distance away. I waited for death, still wondering how I had escaped instantaneous destruction.

British airmen in the Soviet Arctic. Third from left: Flight-Lieutenant Rook, who was awarded the Order of Lenin by the Soviet Government.

Now I know that I had fallen into deep snow on a steep hillside and rolled down into a huge snow-drift.

It seemed to me that I could hear the roar of our bombers starting on their mission, and then again a lulling silence stole over me. I felt terribly sleepy. It was an effort just to open my eyes. My sharpened hearing suddenly detected someone ploughing through the snow . . . my right hand, warm in the gauntlet, reached for my bolster . . .

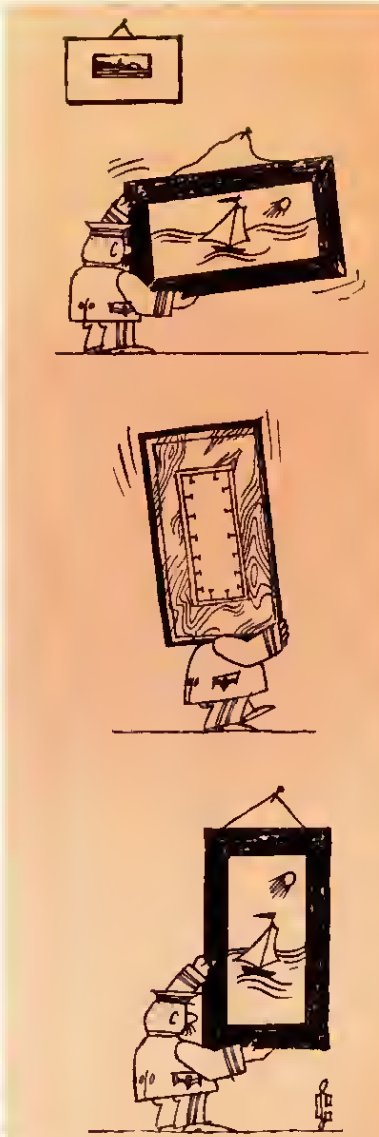
"Who's shooting?" I heard. Unable to answer, I fired two more shots. A man came up and leaned over me. Without unclenching my teeth I muttered, "Pilot . . . commander . . . crashed . . . legs freezing . . . left hand . . ."

He tore off his sheepskin coat and wrapped my frozen legs in it. Then he removed his woollen scarf and rolled it around my left band.

"Hang on, comrade commander," he said. "Don't fall asleep. I'll be back in a minute—I'll just run to the airfield and fetch help."

I did not know how much time passed. I must have lost consciousness more than once. The sound of voices roused me from my death-dreaming. I opened my eyes to see torches flickering all around and people looking down at me . . .

Eventually I was able to return to active service, and I remained in the Air Force until 1950.

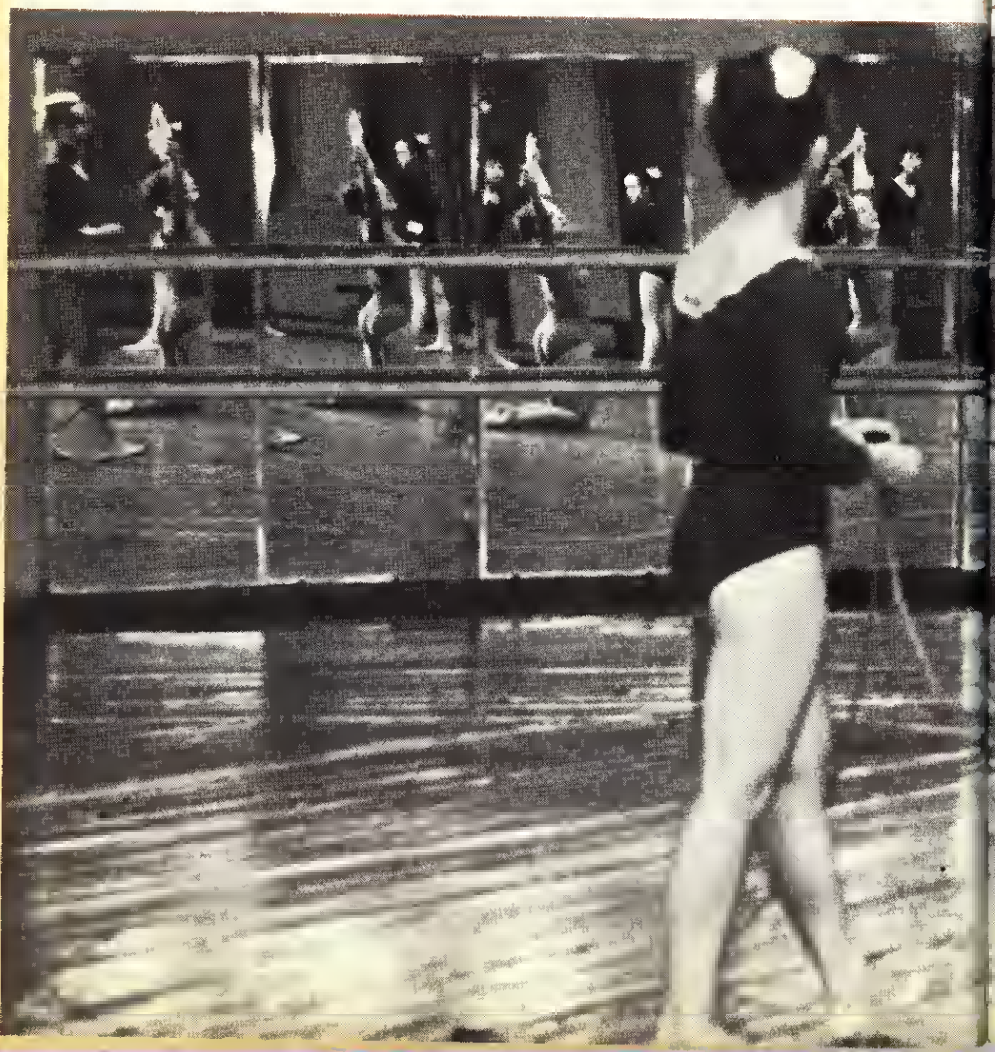


Drawings by V. Sudarev.

Lena takes it seriously

by Alla KONTOROVSKAYA

from the magazine YUNOST

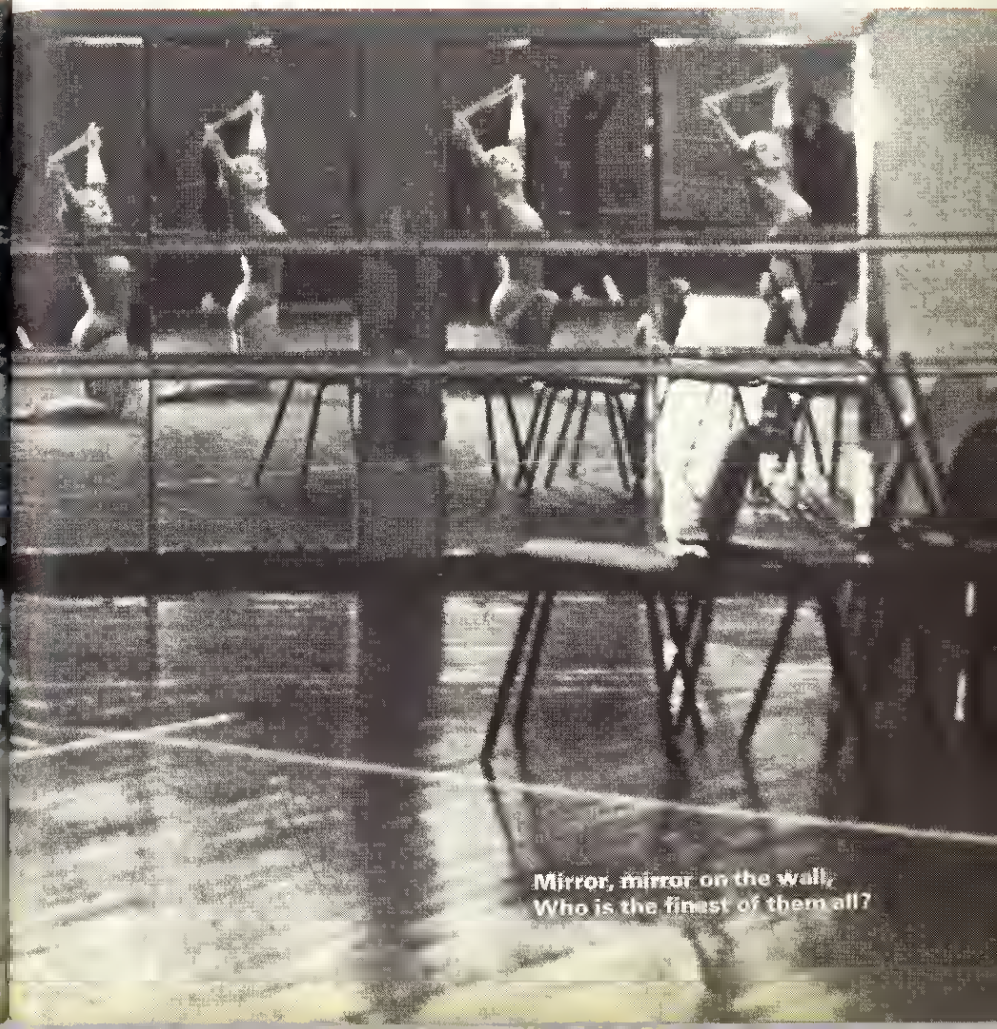


Bambi is always around—he is Lena's good luck token.

Sixteen-year-old Lena Karpukhina won the world eurhythmics championships a few months ago in Copenhagen.

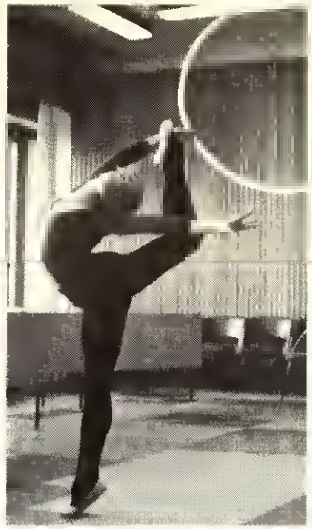
I met Lena after her return to Moscow and asked her, "Lena, how do you feel about being a world champion?"

"I really don't know. Somehow I



Mirror, mirror on the wall,
Who is the finest of them all?

Lena checks on her pumps while awaiting a summons from the judges.



She made rings around her rivals with that hoop, seen in graceful, spellbinding action above and right.

still can't believe it's true. Maybe because it's my first gold medal . . ."

"I understand you took part in the national championships, but were out of luck."

"Yes. Last year I was in eleventh place, and two years ago I shared fourteenth and fifteenth places with another girl. And now I have become world champion. . . . At first I thought it must be a mistake."

"But you knew you were leading."

"No, I didn't know. My coach, Maria Lisitsian, always says, 'Never count points, never try to find out what order the competitors are in. What you must do is to concentrate on your own performance.' "

"So you only believed in the gold medal when you saw it?"

"Yes, and I thought of my grandmother right away. I was wondering how she felt about it. She told me later she had been watching the championships on television at our neighbours' house. They have a big screen."

"Do you live with your grandmother?"

"Yes. It was she who wanted me to go in for sport."

"What else do you like besides eurhythmics?"

"I love animals. We had a tortoise. She lived in the garden. We never tried to keep her indoors. And last summer, when I was in Kiev for the national cup competitions, the tortoise disappeared. Now I have a pigeon. And I also keep fish.

"I also like modelling animals in Plasticine: squirrels, swans . . . I give some of them to my coach. As I say,

Continued on page 89.

Not so long ago, skipping was just something she played with the other girls at home in Moscow.

I love animals and shall some day enter the biology department at the university."

"How much training do you do?"

"Three or four hours, three times a week."

"And what about your school work? Do you have enough time for that?"

"Well, I'm doing very well at school. That's why my teachers always let me off for contests. Of course, I take my textbooks with me, and when I get behind, my classmates help me. They're good friends."

"Do you have many friends?"

"Oh yes."

"And what trait do you most dislike in people?"

"Arrogance. You can come first, but mustn't get terribly swollen-headed about it. Unfortunately some champions put on airs."

"What about ambition?"

"It's not good to be very ambitious, I think."

"Why?"

"It's too egoistic."

"And who's your ideal in sport?"

"Natasha Kuchinskaya*. She does not show off, although she is a champion, too. I was very glad when she won the world title."

"Do you read *Yunost?*"

"Yes."

"Do you remember an article we published on eurhythmics last year?"

"Of course I do. In it Maria Lisitsian wrote that I lacked the emotional touch. It's true even now. Some critics say that I never smile. At one big competition I smiled —and caught my foot in the skipping rope! I can't smile, I get shy.... Or rather, I can't do it in a hall with thousands of people looking on."

"Do you ever cry?"

"Yes, very often. Both at competitions and training sessions. When I get tired."

"And do you like travelling?"

"Oh, who doesn't? I'd very much like to go to Italy to see the picture galleries. I paint a little myself."

"Have you any special wish apart from that?"

"Yes I'd like to have a dog, an Alsatian."

"Can you picture yourself, say, 30

**Natasha Kuchinskaya—a former world champion from the U.S.S.R.*

What Lena Karpukhina likes to eat most of all is her Grandma's cake.

Lena's first medals . . . after the long hours of training.

years old? How do you think you'll feel?"

"Some of my girl friends and I tried to imagine ourselves as grandmothers, but somehow we found it very difficult."

"Have you ever dreamed of becoming a film star?"

"I don't think I'd be any good. I'm not the emotional type, you know."

"Who is your favourite actor?"

"Innokenti Smoktunovsky."

"And the last question: whom do you love and respect the best of all?"

"My coach. She is a remarkable woman. She is very kind, and, of course, very strict whenever it is necessary.

"I also love my grandmother very much. I used to take her to competitions. But that was only at the beginning. You see, when I get worried—and I always do at contests—I bite my fingernails. And she also got worried on my account, and shook her finger at me as a sign to stop nibbling. So I don't take her now."

Now she can smile at last—she's the world champion.

beauty equals EXPEDIENCY?

By Ivan YEFREMOV

from the novel THE EDGE OF THE RAZOR

Beauty is primarily functional—this is the belief of biologist Dr. Ivan Ghirin, a character in The Edge of the Razor, *the latest novel written by Ivan Yefremov, scientist and science-fiction writer and author of* The Andromeda Nebula. *In the fragment given below, Dr. Ghirin expounds his controversial idea to an audience of artists.*

Our understanding of beauty, of what is aesthetically pleasing, springs from the depths of our subconscious and is transmuted into conscious images and feelings. We have the benefit of the experience of millions of our ancestors—it is stored away in our subconscious and helps us to recognise the features which make up the most highly perfected specimens of the human race, those most universally adapted to their environment, to the fight for existence and to the perpetuation of the human species.

It is these features which in the final count we consider to be beauty.

What are the main points on which we judge beauty in a human being? Smooth, glowing skin, thick hair, clear, bright eyes and rosy lips. But all these are, after all, direct indications of good general health, and excellent metabolism, and that the vital functions of the body are in good order.

An attractive upright carriage,

straight shoulders, a keen gaze and a proudly set head . . . But what are these if not indications of energy, activity and good general development; of a body that is constantly in action or undergoing regular physical training?

It is quite logical that actors, and especially film actresses, and also dancers and models, in fact all those whose personal attraction is of great importance to their work, take lessons in how to walk, stand and sit in such a way as to give an air of vitality and alertness.

It is interesting, too, that military men have a better carriage and are more rapid in movement than us civilians—apart from the sportsmen.

Another thing. Have you ever noticed the state in which such animals as horses, cats and dogs look their best? It is at the moment when they strain slightly forward, muscles tensed and ears pricked up. Why? Because at such times, signs of the body's energy are most pronounced.

So the tightly coiled spring of energy in man's living body strikes us as beautiful. It attracts us, and thus performs the Nature-ordained task of mating individuals best adapted to the struggle for existence, so ensuring correct selection. This is the biological significance of our sense of beauty; it played a highly important role when man lived in the savage state and it has been carried over into civilised life.

I believe that an ideally healthy man would not feel the need to blow his nose or spit, and would have only a very faint body odour. It is easy to see how vital a fine chemical balance would be to the savage, when he was the prey of wild beasts and himself preyed upon others.

The message of the eyes

What else do we consider beautiful in man? Big, wide-set eyes, not too protruding and not too deep-set. The bigger the eyes, the larger their retina surface and the keener the sight. The wider the eyes are set, the deeper the focus.

As far as teeth are concerned, we consider them beautiful if they are even, close-set, and form a well-shaped arc. This arc is well-adapted to chewing hard vegetable foods or raw meat.

Another feature we consider beautiful is long eyelashes—and they offer better protection for the eyes than short lashes. Eyelashes have more appeal if they curve upwards, and again there is a functional basis —their up-tilted tips keep them from sticking or freezing together.

Beauty and sex

Man has a suhtle sense of the anatomical. He immediately and discriminatingly perceives as beautiful certain features which are opposite for the two sexes, but he never confuses the sex of these features.

Prominent muscles are attractive in a man, but we do not like them in a woman. Why is this? It is because a normal woman has thicker subcutaneous fat layer than a man. Most people know that, but few know that its function is to provide a month's food reserve in the event of a sudden shortage when the woman is carrying or feeding ber baby.

It is interesting to note the distribution of this reserve—it is concentrated in the lower part of her abdomen and around her pelvis. This means that it also serves as heat and shock insulation for the unborn baby. At the same time, the suhcutaneous layer creates the soft outlines of the woman's hody.

One more example. A long slender neck adds to a woman's beauty, but it can make a man look a bit of a weakling. A man's neck should not be too long or too short, and should be sufficiently sturdy to provide stahle support for his head in a fight and to enable him to carry heavy weights.

Since prehistoric times, woman has been a watchful guard by nature: a long neck means greater flexibility and speedier head movements. Again, heauty coincides with expediency.

Finally, broad hips—one of the principal identification signs of the female sex—look appalling in a man. But they have a lot to do with feminine appeal.

No criterion is eternal

The healthy criteria of beauty—Nature could have none other—have given way to unhealthy ones at some periods in history.

In every culture, at its most flourishing state, the ideal of beauty was a healthy body; perhaps too rudely healthy from our modern point of view. This was the case with the women who founded the matriarchal societies of Crete or the Dravidian civilisation of India.

It is noteworthy that in medieval Europe, artists who first portrayed nudes painted women with marked symptoms of rickets: they were tall and thin, narrow-hipped, small-breasted, and with protruding stomachs and domed foreheads.

It was hardly surprising. Their models were women who lived within the confines of feudal towns, who scarcely saw the sun, and ate few vitamins. Their hair thinned, they often went bald, and a receding hairline was even the fashion for more than two centuries. Women cut hair from their foreheads to resemble the most rickety-looking of aristocratic women.

They were nearly all alike, these tragic pathological fifteenth-century Eves, Ariadnes, and goddesses of Van Eyck, de Limbourg, Memling, Hieronymus Bosch, Dürer, Lucas Cranach, Nicolas Deutsch and many more painters. Even the great Botticelli had for his model of. Venus a typical city woman suffering from rickets and consumption. Giotto, Bellini and other early Italians used similar models for their "beauties".

Later, the Italians turned to models from more healtby rural or seaside areas. You know the results better than I.

The imprints of weaker health from city environment were already evident in some of the later Roman fresco figures. They are of people unaccustomed to physical work, with the same traces of rickets and the same vitamin deficiency, their defects slightly toned down by the sunny climate.

Art in our century is returning to

the old criteria. Many artists of today tend to find beauty in elongated, rather attenuated human bodies—especially in female subjects; obviously city types, weak and delicate, unused to physical work or healthy childbirth and possessing few reserves of strength.

A matter of taste

I cannot condemn this return to medieval criteria, for it is a matter of taste. It is natural that the existence of a host of women who do not engage in physical training or hard and sustained physical work must influence the tastes of our time.

One can hardly say that these tastes are wrong at the present. Yet they are wrong from the point of view of man's maximum potential health, strength and energy. So bearing this in mind, I shall proceed to the subject of broad hips, without further reference to their beauty or otherwise, although the ancient Greeks often complimented women by saying, "Your beauty is in your hips!"

The curse upon Eve, "In sorrow thou shalt bring forth children", is still something real, for childbirth is more difficult for women than for animals, and there is a connection here with the sharper sex differentiation existing in human beings.

Man's vertical gait hrings the heads of his thigh-bones as close together as possible. This makes for easier running, balance and distance-walking. But because man is born with a large round head, a woman needs a wide pelvis and plenty of space between tbe hip joints.

The contradiction became more marked in the course of man's evolution. Man's growing brain required a still broader pelvis in the mother, but the vertical gait required a still narrower one. The fontanels—the exposed, membranous area of the baby's bead—partially resolved the contradiction. As the bones of the baby's skull pass through the mother's vaginal opening, they overlap; the cranium becomes compressed and elongated, to regain its former shape later.

Another point. The human baby is born absolutely helpless: it requires longer breast-feeding than animal offspring do.

The elephant stands closest to man in life-span and stages of growth. A comparison between human beings and elephants might suggest that man is born prematurely; that pregnancy in women should last as long as for elephants, around 22 months. But if carried for 22 months, the human baby would be far bigger and his huge head would certainly kill the mother.

A special biological device comes to the rescue—a return to the stage of lower mammals, the marsupials, whicb produce babies prematurely... Except that women, instead of a mother kangaroo's pouch, have human selflessness and tenderness.

The mother must have broad hips so the baby's brain will suffer least risk. Primitive women, who ran a lot and carried the fruits of the chase as well as their babies for a length of time, became, in process of selection, narrow-hipped. They often died during childbirth or produced weak bahies.

Human beings who still live in those primitive conditions—the Aboriginal bunters of Australia, pygmies, and many tribes of South America—are an example.

People who adopted a settled life, in caves of Southern Europe, North Africa and Asia, soon developed strong, hroad-hipped mothers. This sedentary civilization arose in most parts of the globe, over expanses reaching from Japan to Britain, in Mediterranean latitudes which were best suited to life. The invention of the first implements of labour turned man from a homeless wanderer into the occupier of a sturdy dwelling.

The seductive female

The instinctive interpretation of beauty reflected the human demand to perpetuate life, in combination, naturally, with the erotic perception of the woman-friend—the companion who must be strong, would not be maimed by the very first childbirth, and would produce offspring certain to be victors over the dark, boundless kingdom of wild beasts which surrounded our early ancestors.

Whatever the fashion-makers or eccentrics say, when you artists want to paint a seductive female, whether seriously or humorously, what do you do? You paint a hippy, high-breasted, slim-waisted woman.

The slim and supple waist is tbe anatomical compensation for the wide hips, to give mobility and litheness to the woman's whole body.

For a graceful hipline there should be no hollows beneath the bulges of the thigh-hones—it must be a continuous curve. This is something achieved only by proper exercise. A glance at the figure of a ballerina, of a girl-gymnast or figure-skater, or a healthy country girl used to doing all kinds of physical work, proves that our aesthetic feeling hears the unmistakeable mark of maximum functionality as a yardstick for beauty.

Question time

"This might challenge all your clever arguments," a woman artist said. "Women all over the world try to correct your wise Nature by putting on high-heeled shoes. Would you claim that's less beautiful than walking harefoot?"

"Of course not—it's really more beautiful," Ghirin parried with a smile. "But it's worth knowing why. High heels make legs look longer and short womcn taller. Tall women, too, look their best wearing high heels.

"But there's more to it than that. A high heel also changes the proportion of the leg. The shin looks longer, much longer, than the thigh. Our aesthetic perception of the high heel is a sign that we are descended from ancient runners and hunters, who lived amid rocks—subconsciously, we make a flashback to perfection in running.

"In this, the demands of aesthetics coincide with the need for a high instep to ensure a light gait and ability to walk long distances. People with

high insteps find that their shoes last longer than people with average or flattish feet."

The artist pressed her point. "In other words, human beings have degenerated physically since ancient times, haven't they?"

"Not a bit, though people differ vastly in overall body proportions. We have not yet lost any of the legacy of our remote ancestors.

"If man lives for a prolonged period in rigorous conditions, but has enough food and a healthy climate, he becomes taller, his muscles become bigger and his legs longer. This happened among the population of Old Russia, the Old Believers who fled to Siberia, some of the Cossacks, and people who lived around the White Sea.

"The reverse process—adverse conditions of life, poor food, harsh environment for bearing and feeding babies—makes woman shorter and weaker and, what is most curious, shortens her legs. The shorter legs partly compensate for loss of vital power, a loss which renders long legs unnecessary. Such a body consumes too much energy when running, wears out sooner and has a shorter life span."

"And how about the women's plaits?" Ghirin beard from behind his back.

"They provide an aestbetic sensation that is passing into oblivion because for many thousands of years man has been wearing clothes. Long hair was part of man's idea of beauty when, in the warm era between the Ice Ages, be had no idea of clothes.

"As the cold came, long hair could protect the baby from night chills or other adversities at the mother's bosom. Thus long hair became important in the selection of future mothers."

"Why do we look upon a straight nose as beautiful? Isn't it quite unimportant?"

"A straight nose provides a straight passage for the air we breathe. We Europeans, northerners, usually have noses with high bridges, and we also have high palates. By passing into the throat along a steep arc, the air is warmed faster.

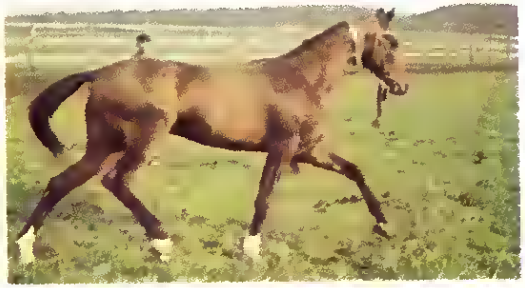
"But questions of this kind require closer study. Are the narrow eyes of the Mongolian peoples an adaptation to the mountain and high-mountain desert light, which abounds in ultraviolet rays?

"All these issues sbould be tackled by anthropology, allowing no racist demagogy to intervene. But functional anthropology bas yet to be founded. What basic factors formed racial distinctions are usually anybody's guess.

"Racial characteristics that are recognised as symptoms of expediency of anatomical functions are not alien or distasteful to us, and, generally speaking, evoke the same aesthetic sensations.

"The point is that all of us are surely brothers and sisters in the precise meaning of the words. Some fifty millennia ago we were a handful. That handful has generated to present great variety of peoples, tribes and languages: it is erroneous to describe them as unique, separate representatives of the human race."

If Richard III were to make his famous offer today, at one of the international horse sales in Moscow, it would hardly cause a sensation. A kingdom might not even be enough to buy a thoroughbred Russian or Orlov trotter these days. Specimens of the breeds were brought to Russia in the eighteenth century. Both Russian (top photo) and Orlov trotters (bottom photo) have made a name for themselves as being among the finest carriage horses on the world's race-courses.



A horse! A horse! My Kingdom for a horse!

Heads held high, hooves crunching in the crisp snow . . . and clearly aware that they have much to be proud of . . . these horses take some exercise.

Colour captures the tension and movement of the big race.

In dressage, trotting and galloping the horse responds to the slightest command of his rider. Man repays him with love and affection, holding him up as a symbol of beauty, grace and faithfulness.

The untried foal, the fans who have seen just about everything . . . they all undergo the scrutiny of the famous Anilin, opposite, who has won many Olympic and other international awards for his riders.

REAL BARON MÜNCHHAUSEN WAS RUSSIAN CAVALRYMAN

by Mikhail MUROV

from the newspaper KOMSOMOLSKAYA PRAVDA

Baron Münchhausen was not a figment of the imagination of Rudolf Erich Raspe, author of *Baron Münchhausen's Narrative of His Marvellous Travels and Campaigns in Russia,* although the Baron has more right than anyone to his reputation as a teller of tall tales. Few know that there was a real Baron.

Baron Münchhausen, of old German aristocratic stock, was born on May 11, 1720, at Bodenwerder, the family estate in Braunschweig. He was christened Karl Friedrich Hieronymus.

He served as a page-boy at the court of Duke Anton Ulrich of Braunschweig; tben, at 19, enlisted in a Russian regiment of cuirassiers quartered in Riga.

The regiment's colonel and patron happened to be the Duke of Braunschweig. Soon Münchhausen was gazetted subaltern, and a few years later promoted to major, commanding a squadron, in recognition of his gallantry in Russian campaigns.

Russo-Prussian relations cooled, and Münchhausen bad to leave his regiment for Germany. There, at the old Bodenwerder family mansion, the Baron often assembled friends for pipe and puncb.

With great talent he spun many a yarn about fantastic and incredible adventures while out hunting and in his campaigns against the Turks.

For Baron Münchhausen, his later years were not happy. His second marriage was not a success; he was ruined financially, and the once witty and enthralling raconteur degenerated into a taciturn, sullen old man. His celebrated "club" broke up.

One of his friends, the well-known poet Bürger, collected and published the Baron's tales as a book. The Baron felt slighted, taking the book as ridicule. He retired to deeper seclusion.

The archaeologist Raspe, another of the Baron's friends, was accused of stealing a coin collection and had to flee to England. In London he achieved popularity as a writer. Then, recollecting tbe many evenings with merry friends at Baron Münchhausen's home, be wrote his book about the Baron's "marvellous travels and campaigns in Russia".

The book became famous overnight, and there were five editions in the space of two years.

The fifth edition reached Germany, where Bürger translated it into German, and, in 1786, published it under the new title—*The Amazing Travels and Adventures by Land and Sea of Baron Münchhausen as Told by Himself to His Friends over a Bottle of Wine.*

Bürger, by changing the title and removing Raspe's name from the title page, sought to emphasise that the book was merely a re-telling of the real Baron Münchhausen's own improvised tales.

MUSEUM IN PERMAFROST

A journey into the Future . . . from the newspaper TRUD

Imagine a great underground hall. Millions of ice crystals covering the walls and high vaulted ceiling reflect the bright luminescent lighting.

Along the walls, in niches, are specimens of the flora and fauna of all climatic zones . . . coconut trees braided with lianas, mighty baobabs, oaks and Siberian cedars . . . and right beside them, a ferocious African lion ready to spring, an elephant with raised trunk and curving tusks, and an enormous crocodile basking under hot electric lights.

This is according to the plans by Mikhail Sumgin, Soviet expert on problems of the North, for a 35-ft. deep underground museum in the Arctic town of Igarka. His idea is to preserve for generations to come as many species of present-day flora and fauna as possible.

That precise depth has been chosen because the temperature there remains constant all year round—about nine degrees Fahrenheit below freezing.

An underground gallery leads from this main ball to a smaller one. Set into the walls behind glass windows are species of plant and animal life of the Arctic North, all covered with a thin layer of ice to preclude contact with air.

Our underground journey is only part fantasy, for the smaller hall with all its exhibits already exists. Before long the museum will be completed.

RUSSIAN MUSEUM IN THE ARCTIC CIRCLE

from the newspaper KOMSOMOLETS, Karelia

The most northerly Russian museum is a small wooden house on the shore of Isfjord on Spitzbergen Island.

Vladimir Rusanov, tbe Russian explorer, built the house more than half a century ago as a base for his Spitzbergen surveys. His ship *Hercules* was wrecked a few months later near Novaya Zemlya, with loss of all hands. In Soviet times, Rusanov's house has become one of the few museums in the Arctic Circle.

On the cold shores and in the mountains where the bold Russian explorer led his expedition, coal mines have been opened and modern workers' townships built.

Leningrad architects on a recent Spitzbergen mission decided that it was practicable to build three and four-storey bouses in place of the present one- and two-storey dwellings, and to use plastic and glass more freely in this Arctic temperature.

In time Spitzbergen is likely to become a highly popular Arctic tourist centre.

GREEN SENTINEL OF THE DESERT AT ITS POST IN THE HOTHOUSE

Although America is the home of the cactus, this proud prickly beauty does quite well on Russian soil, too. There are thousands of fanatical cactus-lovers in the Soviet Union, and the collection at the Botanical Gardens is one of the finest in the world (left), with about 900 species of cactus. The most popular with cactus-lovers is the epiphyllum, which does not require delicate treatment and is particularly handsome in flower, as can be seen in the photograph above.

When the conquistadors invaded Mexico in the fifteenth century, the sentinels of the desert lay in ambush for them. Their horses were caught on "the teeth of the devil", and not only beast but man, too, died from wounds inflicted by prickly cactus. But these warrior shrubs proved to have their beneficial side: their stems are 90 per cent water, and are able to slake the thirst of the traveller; their fruits (above) are edible, and are rich in glucose, vitamins and protein. But what most attracts Soviet horticulturists is their exotic beauty. Take the Aylostera pseudodeminuta (left). It is a miniature flower-bed in itself, and has been given an even more luxurious look by the staff of the Botanical Gardens, who have grafted it on to the stem of another cactus, to which it readily takes.

The gymnocalycium, which may look like a gear-wheel (top) or possibly a football, is highly prized in the USSR. Its name means "bare calyx", and this is its characteristic feature (bottom photo). The picture opposite shows the only leafy cactus now in existence, the pereskia, a reminder of remote times when all cacti had leaves. Now many of the cacti that have survived in the more arid regions have knobbly stems, the protuberances fulfilling the role of leaves, as with the cereus peruvianus. Another type that has adapted itself to desert life is the eriocactus, with its fleshy stem and prickles.

LOOKING FOR THE VOLGA ATLANTIS

ALEXANDER KONDRATOV lives in Kuibyshev, on the Volga, and specialises in mathematical linguistics and deciphering ancient writings. He has written 11 books on various popular science subjects, and some of these have been translated into Japanese, French and Bulgarian. His last book but one dealt with the riddles of the culture of Easter Island. His eleventh and latest is called Lost Civilisations. *One of these lands is Khazaria, now buried in the bed of the Volga and the Caspian Sea, and he discusses in this article how research turned an ancient legend into historical fact.*

A powerful European kingdom and its splendid capital, Itil, disappeared without trace a thousand years ago. Common sense suggested that the story was a myth: that there had never been mighty kingdom or splendid capital. But the mystery continued to excite the imagination.

The history of the Kingdom of Khazar is closely bound up with that of Ancient Rus, for at one time the Khazars held sway over nearly all south-east Europe, a vast territory sprawling between the Don, the Volga and the Terek. They had their capital on the Volga, a large city called Itil, from the ancient name of the river.

Khazaria began to flourish in the mid-seventh century, when the Khazar Khanate was set up. In the early eighth century, this powerful state ruled over numerous tribes and peoples. Slavs, too, paid tribute to the Khazars.

The Khazars were described by Byzantine, Armenian and Arab chroniclers, and the first Russian annalist mentioned them in his *Chronicle of Ancient Years.*

In olden times, the "way from the Varangians to the Khazars" along the Volga linked the Baltic and Caspian Seas, just as the "way from the Varangians to the Greeks" along the Dnieper connected the lands of north and south.

The emerging Russian state had to struggle hard for liberation. Finally, in the campaign in 965, Prince Svyatoslav, son of Igor, routed the mercenaries of the Khazars and occupied all their major towns.

Archaeologists have long been searching for ruins of Khazar towns and settlements, for their capital, Itil, on the Volga, and for any artefacts, like dwellings, household objects and tools; but, and this was strange, they found no sign of burial mound, settlement, hut, or potsherd.

What about Itil, the reputedly great city, with a vast population, a brick palace and stone walls? Where

was it? The banks of the Volga no longer held any secrets, but the mysterious Khazar capital had yet to be found. Perhaps, after all, it was a myth?

There were many reports of it by medieval scholars, but archaeologists could neither prove nor refute them because there were no material traces of Khazar culture. Was it possible that they had lived somewhere else? Had they, in fact, been a mighty civilised people, or a semi-barbarian and predatory tribe of the steppe?

This was the view held by Academician B. Rybakov, a leading authority on Ancient Rus. He believed Khazaria had been a small, semi-nomadic state, which had simply preyed on the trade route linking Asia and Europe. He maintained that the Khazars had lived in the Kalmyk Steppe, a semi-barbarian, marauding tribe which could hardly have left any civilised mark.

That appeared to clear up the point, but some doubt still remained.

Perhaps geology and climatology, rather than history and archaeology, could help solve the Khazar puzzle?

That was the view of the historian, L. Gumilyov, who searched the banks of the Volga for traces of the legendary Itil. He has had some success.

Just a bit more history, in terms of paleo-climatology and geology, before we come to the point. The sixth century was the heyday of the nomads. Turkic tribes gained control over the vast steppe and set up the Turkic Khanate. And at this period the Volga, which was not receiving cyclonic moisture from the Atlantic, was drying up; the Caspian Sea was retreating, and in the lower reaches of the great river there flourished the culture of the Khazars. In the seventh century, the descendants of the last Turkic Khan moved their seat to that area.

With the start of a new climatic cycle, however, the level of the Volga rose and the waters of the Caspian began to overflow its banks and flood the lands of the Khazars. Nomad tribes, driven by hunger and thirst, attacked their kingdom from the east. Rus threatened it from the west; while the waters of the Caspian, rising inexorably in the south, inundated the flat coastal land.

By the middle of the tenth century, two-thirds of Khazaria lay under water. In 965, Prince Svyatoslav was able to overthrow the Khazar Khanate with one powerful blow. The waters did the rest. By the end of the thirteenth century, the whole country was beneath the Volga and the Caspian. The survivors embraced the Moslem faith and were assimilated by newcomers.

Doctor L. Gumilyov spent several years looking for the Khazar capital. The first Khazar barrow was discovered on the slope of a hill in the Volga delta (in the fourteenth century, at high tide water lapped the foot of the hill). Dredging in the central delta brought up shards of Khazar pottery. Thus the veil of mystery over Itil, the capital of Khazaria, was finally lifted.

WONDER WELDING

by Genrikh SKORETSKY

condensed from the newspaper TRUD

However commonplace it might have been, the experiment looked like a miracle to me. I felt as if I were watching an experienced conjuror in action. But he was simply an engineer in a college laboratory.

Just a moment before, he had held a fragile glass tube in one hand and a metal rod in the other. The next minute he handed me a lukewarm piece of glass and titanium, which bad fused together so there was no taking them apart.

I examined the piece long and hard, but never found the seam. The testing machine into which the sample was placed failed to tear the glass and metal asunder—the sample broke, but not where it had been welded.

In the office of Professor Nikolai Kazakov, who heads the laboratory at the Moscow college which trains engineers for the meat and milk industries, I saw a unique collection containing hundreds of unusual exhibits.

In defiance of all the laws of physics, chemistry and thermodynamics, welding has wedded silver with wolfram, aluminium with gold, copper with glass, ceramics with cast iron, molybdenum with graphite, and steel with diamonds. The new method mates more than 400 materials of various kinds.

This opens boundless vistas to engineering—that was the first thought that crossed my mind when I examined the results of Dr. Kazakov's discovery. His method of bringing together materials is known as "diffusion vacuum welding".

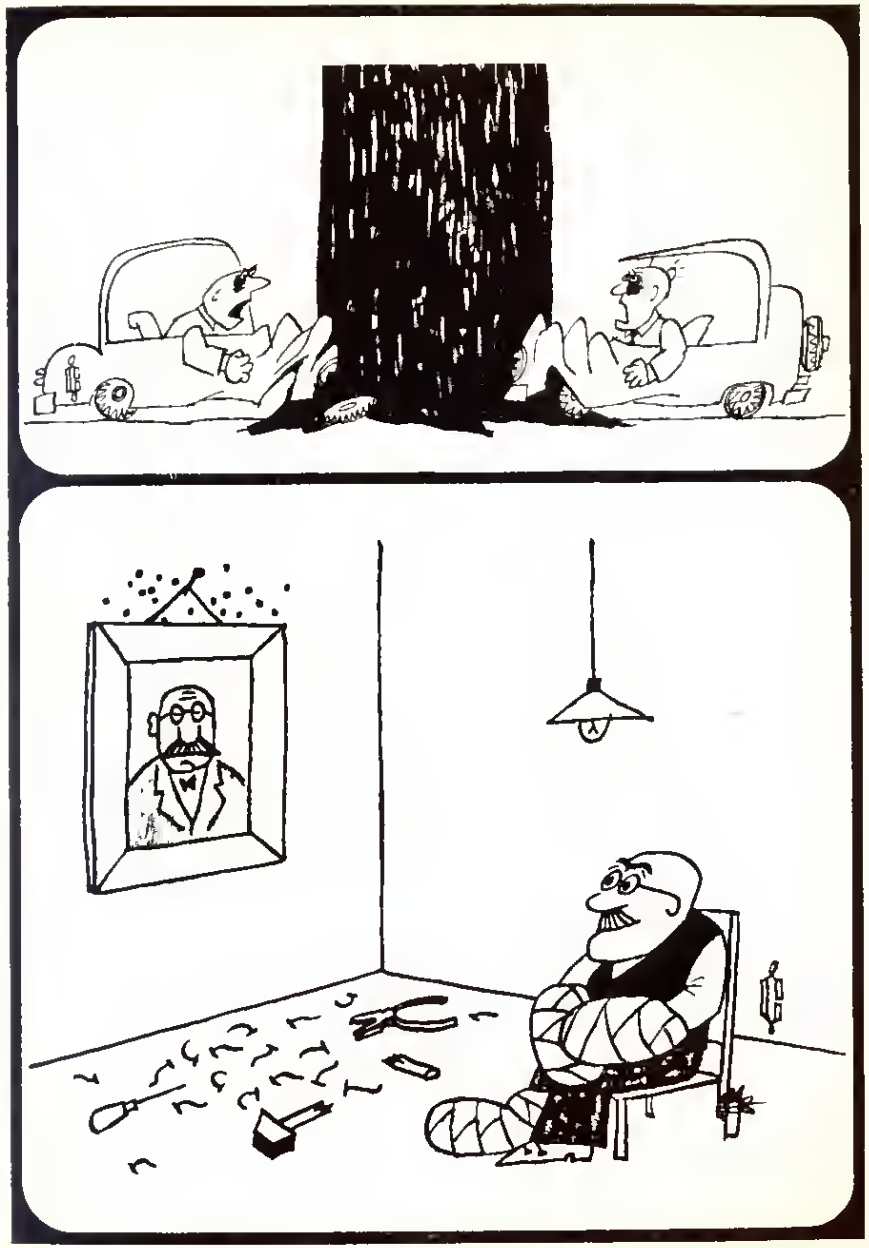
The technique was devised several years ago. Pieces of different substances are placed in a vacuum chamber and heated slightly for several minutes. Next, they are lightly pressed together and cooled. The two pieces form one solid object: metal particles of one piece have diffused into the other.

The vacuum chamber contains no oxygen, so there is no oxide film on the surfaces of the pieces to block diffusion.

Most important of all, the new technique makes it possible to weld materials such as metals with non-metals and many-faceted objects which cannot be welded otherwise.

Diffusion welding is profitable economically. It requires no electrodes, solders, fusing agents or protective gases. Since welding leaves no seam, subsequent treatment is not needed.

Dr. Kazakov has 23 sets of patent documents from the Soviet Union, the United States, Britain, Federal Germany, France and other countries.



ALEXANDER IVANOV

by Nikita GOLEIZOVSKY
and
Saveli YAMSHCHIKOV

THE work of Alexander Ivanov (1806-1858) reflected the antagonism of two ideological trends in Russian nineteenth-century art.

Alexander Andreyevich Ivanov was born into the family of a renowned painter in St. Petersburg. From the age of 11, under the guidance of his father and other eminent artists, he studied at the St. Petersburg Academy of Arts. At that time, the Academy was Russia's leading centre of art, and trained first-class painters.

Ivanov's life-long dedication to historical painting was evidently largely due to the influence of his father.

Although raised in the academic tradition of worship for the masters of antiquity and the Renaissance, and trained to copy existing masterpieces rather than to work from nature, Ivanov found inspiration in reality, in the people and landscapes surrounding him.

The artist's talent manifested itself early in life. At the age of 18, Ivanov was awarded a gold medal for his painting, *Priam Asking Achilles for the Body of Hector,* on a theme from Homer's *Iliad.* That student work observed all the academic canons, including strict, balanced composition, great detail and centering of the main figures.

However, that very first important canvas revealed Ivanov's interest in the psyche, in a study of complex psychological states, which showed even more clearly in *Joseph Interpreting Dreams to his Fellow-Inmates, the Caterer and the Cup-Bearer.* That biblical subject offered food for philosophising about life and death, man's apparent defencelessness in the face of the mysterious powers of destiny, and the lawlessness of those in power.

Ivanov's works became largely ethical in content after the time the artist painted *Christ's Appearance to Mary Magdalene,* which, when it was completed in 1835, brought him the title of Academician.

In the face of the young woman who turns to Christ with deep faith, Ivanov was able to convey all the joy and suffering of a human being who has suddenly found the true path and is ready to renounce immediately the oppressive past, and

Continued on page 124

"Priam asking Achilles for the Body of Hector" (1824).

"Sunset Over the Appian Way" (1845).

Detail from painting, "Christ Appearing to the Multitude" (1837-57).

Sketch for the head of Christ (1840s).

at long last, cast off the fetters of sin.

In those years, the artist lived and worked in Italy. There he conceived and created his greatest masterpiece, *Christ Appearing to the Multitude.*

Unlike most of his fellow-Academicians, Ivanov devoted much of his time to painting from nature. He drew nudes against the background of the lush greenery of Italian fields; thoughtful, sad-eyed young women; Jews on their way to the synagogue.

Eacb summer, Ivanov left his studio in Rome and set out to wander through Italy. He was not interested in the theatrical effects of the natural surroundings so sought after by many artists; rather, he looked for the hidden, inner charm of the Italian towns, villages and countryside.

In an effort to express his feelings, Ivanov discovered the power of direct personal impressions long before the Frencb Impressionists. In the silvery mist of foliage, the tender breath of blue shadows, the reflection of rocks, which sparkled in tiny specks in the rippling sea, the artist saw the harmony of nature.

His impressions went through the crucible of thought to be transformed into artistic generalisations. Such is his painting, *The Branch,* which combines a certain tremulousness with the omnipotent power of life.

Anotber example is *Sunset Over the Appian Way,* a triumphal hymn to the earth, which retains in its wrinkles the ruins of ancient tombs, reminders of Roman greatness.

"Head of John the Baptist" (1840).

The Italian works of Ivanov are not merely visual impressions, but also meditations and philosophical excursions into the primary cause and essence of things.

An idea of how the artist worked can be gathered from his own writings, and through tbe reminiscences of his contemporaries. In one of his letters Ivanov describes how, with the ascetic dedication of a recluse, he disappeared into his studio and surrounded himself with studies of rocks, willows and maples, writings of historians and archaeologists, the Bible and the Gospels, "hoping to hit upon some new idea that migbt contribute to the improvement of my composition".

Ivanov's method can be called deductive—he went from a part to a whole, looking for the common elements among details. This explains why be produced so many studies and so few sketches in preparation for his historical epic.

It took him 20 years (1837-57) to create *Christ Appearing to the Multitude,* and it was the consummation of his efforts as an artist and philosopher.

The philosophical idea of the work is expectation of a moral renewal of society. Tbat subject, which stirred the majority of progressive writers and artists of his time, found its best expression in the works of Gogol and Dostoevsky.

Many contemporaries saw a hidden meaning in Ivanov's picture, but each interpreted it in his own way. "Its idea," wrote I. Y. Repin, Russia's greatest artist, "is close to the heart of every Russian. He portrays oppressed people who thirst for the word of freedom and follow the passionate preacher."

However, what Ivanov meant to show was incomparably more complex. By choosing to use historical parallels, he consciously rejected the direct didacticism which dominated the painting of his time. Instead of ready conclusions, Ivanov offered the viewer food for meditation and comparison, for an independent evaluation of impending historical cbanges.

The central figure in the picture is John the Baptist, pointing out to the people the distant, advancing Messiah. He is the seer. In the present he sees the future, and the event to him is an integral part of a single timeless and eternal process.

But for the surrounding crowd, which includes the eventual disciples of Christ, wanderers, warriors, Judaean priests, slaves, the event on the bank of the Jordan is something unexpected. For some it is a confirmation of timid, unavowed bopes, a miracle in which they are anxious to believe. For others it is the collapse of ambitions. Still others have no idea what it is all about.

By pitting and contrasting the different psychological states, Ivanov strove by historical analogy to convey a picture of the moral state of Russian society in those years of dark reaction which followed the suppression of the Decembrist uprising. All forms of conservatism, ignorance and injustice, the artist believed, must be overcome by the spiritual power and moral purity of the people.

Perhaps of all his distinguished contemporaries, it was Alexander Hertzen who most profoundly appreciated and understood his work. In 1857 Hertzen told Ivanov in London:—

"I don't know if you will find forms to suit your ideals, but you are setting a great example to artists and provide proof of the unexplored wealth and integrity of the Russian character, which we know by intuition, which we feel with our hearts, and because of which, despite all that is being done in our country, we all so passionately love Russia and have such warm hopes of its future."

Overleaf: "Christ Appearing to the Multitude", which took Ivanov 20 years.

A SINGING MONUMENT

from the magazine VOKRUG SVETA
(Around the World)

From a distance you will hear the strange music, seemingly born out of space, out of time. But with each step closer, the sound will grow until you finally realise that the music is born of the wind rushing through a narrow passage between two concrete bowls standing some 33 ft. high.

The unusual structure is to be erected in Geneva's Place des Nations to mark the centenary of the International Electrical Communications Union.

It is designed in such a way that the slightest sound made between the two earphone-shaped bowls is amplified and generates more sound.

A footstep, a voice, the rustle of the wind . . . all change in quality, reverberating between the titanium-covered bowls, and form one lilting melody.

This poetic presentation of the idea of world communications won the top prize in a competition for a monument to mark the event.

It was created by young Soviet architects, L. Misozhnikov, Y. Ilyin-Adayev and R. Kananin, who worked under the guidance of Y. B. Belopolsky, and in co-operation with acoustics experts of the Structural Physics Institute.

"I have a friend living in Kherson (we were in the Navy together). He has a married daughter, Maya. In August I went to see him on his birthday, and was so upset about Maya's daughter that I came home and cried. I have been worrying about her for a whole month and in the end I have decided to write to you . . . I have lived my life, but the young people there are just beginning theirs. . . ."

—Extract from a letter written to the newspaper *Izvestia* by Pyotr Tereshchenko, captain of an oil tanker based on the port of Nikolaev.

by Yevgeni ZHBANOV

ADOPTED CHILD—AN AGONISING DECISION

It was a big house with a wide, glassed-in terrace overlooking the garden. Maya had helped her father and husband to build it, and was delighted with its many attractive rooms.

But when the house was ready and they moved in, there seemed to be too many rooms. Within a month Maya realised that she no longer felt the same enthusiasm for all the new household gadgets the menfolk brought home every day and which she herself had once considered the hallmark of a modern, comfortable home.

They began going out more and

more frequently. Always together. And whenever, on their way to the hus stop, they passed Children's World, the hig department store with its display of toys and hahy clothes, their conversation tended to peter out.

"Igor, why don't we adopt a little girl?"

Her hushand was not against the idea, and Maya started visiting the Bahies' Home,* where she stared hungrily at the pink-faced infants that Staff Nurse Yekaterina Vassilyevna hrought out to show her.

Then came the day when the head of the school where Maya taught (he had given her the most glowing recommendation to support her application for adoption) announced to the staff: "Friends, our Maya has a bahy girl!"

Maya proudly wheeled the new pram along the streets and, like all mothers, she thought her hahy the cleverest and most heautiful one there was.

Alyona really was a delightful hahy. She hardly ever cried, never screamed, and the magnificent way she slept and slept, undisturbed hy any noise from the television or any other source, was something to hoast ahout.

After she had finished at school each day, Maya used to dash home and put "Grandfather" through a rigorous cross-examination about Alyona's "conduct". Grandfather had nothing hut praise for her.

The months went hy; Alyona hegan to crawl about the house, and then to stagger, and the rooms rang with her laughter and squealing. Her eyes followed Maya's every movement.

Maya began to he worried because she seemed late in starting to talk, and one day popped into the district clinic to consult the doctor on her way home from school. The doctor allayed her misgivings. Plenty of children, she pointed out, did not speak until they were a year old, and some, even, not until they were two. Maya could, of course, take her daughter to see a specialist if she liked.

But Maya felt reassured—after all, Alyona was not a year old yet. So she said nothing to anybody.

But her suspicions were to return, to persist and grow. . . .

One Sunday the whole family went picknicking on the River Dnieper. Alyona, full of pep and curiosity, ran headlong towards the water.

"Alyona! Be careful! You'll fall in!"

The little girl stopped almost at the end of the path. Igor and Maya hid behind a hush and started calling, "Alyona! Alyona!"

She seemed not to hear. Then Igor hegan to heat on an empty pail with his knife.

The child sat down under a tree and stared at the water. She bent over and studied her reflection, not reacting in the least as her mother, a tall, beautiful woman, stood over her and, pressing her hands to her temples, cried, "Igor! She's stone deaf!"

Unahle to believe the ohvious, Maya looked frantically into the child's ears. What ahout all the sweet nothings she whispered into them? Who were they for? She was overcome with pity for herself, for her hushand.

Her father put his arm around her shoulders and tried to comfort her: "Look, Maya, worse things have happened. Don't lose your head. We'll get along."

Alyona was running about, laughing as all children did. It was impossihle, a nightmare, to helieve she couldn't hear her own laughter.

★ ★ ★

In Kiev and Leningrad, the otolaryngologists examined the girl thoroughly. Their verdict was unequivocal: congenital deafness.

"How can she he deaf?" Maya begged desperately. "How *can* she be? She often turns round when we call her. She *does* hear!"

"Yes," said the specialist. "She hears, hut not the way we do. Children born with hearing defects develop the other senses to an extraordinary degree. Their skin 'hears'—it picks up the oscillations of air waves, especially indoors, where there are walls to conduct resonance. Their feet feel the vihration of the floor when someone walks. That is why the child turns round when you call her or walk towards her.

"Until a child is a year old, it is almost impossihle to determine whether deafness is congenital. If it is not, then it may be treated. But you can't do anything ahout congenital deafness."

Maya went on to Moscow. She stood looking across at the children's hospital. Perhaps the specialists here in the capital would tell her it was all a mistake, and that the deafness was not inhorn. Perhaps there was still hope.

Later, in the doctor's consulting room, she tried not to look at the face with the circular mirror on the forehead, tried not to watch as the tuning fork hummed close to Alyona's head.

"It's hopeless, I'm afraid," the doctor said, and went over to her. "There's no douht that it's congenital. . . . Tell me frankly, did you try to get rid of the hahy with quinine when you were pregnant?"

"What!" Maya cried. "She's not my daughter. I'm not to hlame!"

"I'm not to hlame," she kept repeating to herself, hack in her home town, as she deliherately carried Alyona through the less crowded streets. The same refrain heat through her head as she made her way to school, as she looked into the faces of her pupils.

★ ★ ★

Only Alyona knew nothing of what had happened. As always, she careered around the house and jumped up and down on her granddad's knee.

"I won't give her up," he whispered fiercely, staring through the door into the next room where two

* *A home for children whose mothers, for some reason, renounce all claim to their children before birth. The children live in these homes for the first few years of their lives and then go on to orphanages, where they may stay until they are 17.*

people sat opposite each other, writing out statements of their reasons for relinquishing their adopted child.

Later, Maya admitted that there were minutes when she wanted to tear the paper into a thousand pieces and forget the whole thing. But she comforted herself with the thought that Alyona would never know how she had been betrayed.

The two of them worried about how their application would be received by the Babies' Home's Board of Trustees. They would go out on the porch, mute and sad, and stare into the darkness, listening to the rustle of falling leaves, the clangour and clatter of the distant harbour, a reminder that life went on regardless.

Adoption had been no easy thing for them. They had needed recommendations from their place of work, they had been visited by representatives from the Babies' Home, by the local doctor. They had had to answer very private questions in great detail. And then they had had to face the Board of Trustees and the Executive Committee of the City Council's Committee: the fate of a human being was at stake.

To take on someone else's child to love like your own is almost as difficult as passing through the eye of a needle. There are people who for various reasons cannot have babies of their own, and so adopt children. Society wants to know just who they are before entrusting them with a human being.

To Maya and Igor the summons from the Board of Trustees was like being taken to court. They were ready to plead guilty. They were so nervous that they even forgot the customary "Good morning" as they went in.

The faces around them were lost in a thick fog; what was said seemed to come from miles away. Someone asked if there was a signed medical statement. Another sighed and said: "It's one thing when it's your own child. . . ." The secretary pointed out that the law forced no-one to bring up defective children.

The whole procedure took only a few minutes. No recommendations, no formalities. They were not even called before the Executive Committee of the Town Council meeting.

Oh yes, adopting a child was much harder than abandoning it. . . .

★ ★ ★

So easily sacrificing one human being for the happiness of two others, people did not realise that they were sentencing these two to the perpetual self-torture that would begin as soon as the fear of facing life with a defective child died within them. The official measures had been taken, and now Alyona's return to the Home depended on nothing but the law.

That evening, Maya gave Alyona a bath, did her hair, put on her new dress. She then seized the child's face in her two hands and looked earnestly at her. There were tears in Maya's eyes, and Alyona did not like that one bit. She offered her mother a doll.

Again avoiding the crowded streets, Maya carried Alyona to the two-storey building, back into the very room from which Alyona had come two years ago. Maya had hoped for happiness then: she had the same hope now. Probably all people's actions are motivated by the hope of something better.

Alyona seemed to sense the imminent parting, and refused to go upstairs with the nurse. Maya went up with her, through the white-curtained door. . . .

"Good luck," said the Senior Nurse Yekaterina Vassilyevna curtly.

"I'm not to blame!"

"Nobody said you were."

Maya felt as if her heart would burst, as it hit home to her that she might never be allowed to see Alyona again.

She returned home as if from a funeral. The little blue bed looked up at her from the corner of the silent room. Underneath it stood the big box crammed with toys. That evening no-one said a word.

Then, as the days passed, a general silence seemed to settle over the house. The smallest trifle would arouse a burst of anger. Talking about children was taboo. When asked about Alyona, they would wince and reply that she was away at nursery school.

Once Maya ran to the Home, pressed her head to the gate and through the bushes saw a familiar curly head. "Alyona! But she can't hear me, even if I yell until I'm hoarse."

"Igor, let's go away. . . ."

They went down to the little village where Igor's mother lived. Steppe and dust, nothing else. But there were children, kids who laughed, ran around and played.

They could stand it for only a week. Then they went back to Kherson and to see Alyona. After the second visit they were told to stay away, because the child refused to eat after their visits.

Maya, once beautiful, became thin and pale. She no longer bothered about concealing the grey streaks in her hair. A month later, tortured to despair, she went to see Yekaterina Vassilyevna and asked for permission to take a new child. She came every day, begged for a little girl, any girl, even the most sickly one. Any little girl that would help her to forget Alyona.

They finally believed her, and permission was granted. By a strange coincidence, the new girl's name was also Alyona. Maya brought her home, bursting with happiness. Now she had a new child to love, a pink-and-gold baby one month old.

Completely occupied by the baby, she hardly noticed the day pass. Only that evening, when the baby was asleep in bed, something seemed to crack within her and she started pacing the rooms. Her father sat in the living-room holding a photograph album on his knee, an agonised expression on his face as he looked at a picture of Alyona.

★ ★ ★

No-one at the Home could have foreseen that she would come again. But come back she did—and she stumbled on Alyona right in Yekaterina Vassilyevna's office. One of the nurses burst in, scared to death

by the terrible cry of anguish. Then she turned away, wiping her eyes with her sleeve. Yekaterina Vassilyevna turned away, too, and looked out of the window.

These two women who were present at the sudden meeting of Maya and Alyona talked the head doctor into giving the child back to Maya without official permission.

Only six months later did Maya fully realise the price of her newfound happiness. She went with the older of the two Alyonas to buy some bread. In the shop the little girl suddenly stiffened and held tight to her mother's skirt.

White curtains hung at the door that led to the back room. The same kind of curtains as hung in the Home, in the room where she had once been abandoned. . . .

THIRD EYE

How does a man, when his back is turned, "feel" that someone is looking at the back of his neck? He has no eye in the back of his head.

Some scientists assume it is due to a pineal gland in the occipital part of the brain.

Others believe it is a rudiment of what was once a third eye, and still others that there must be an organ of telepathic communication existing in man and the other vertebrates.

from NASH SOVREMENNIK (Our Contemporary)

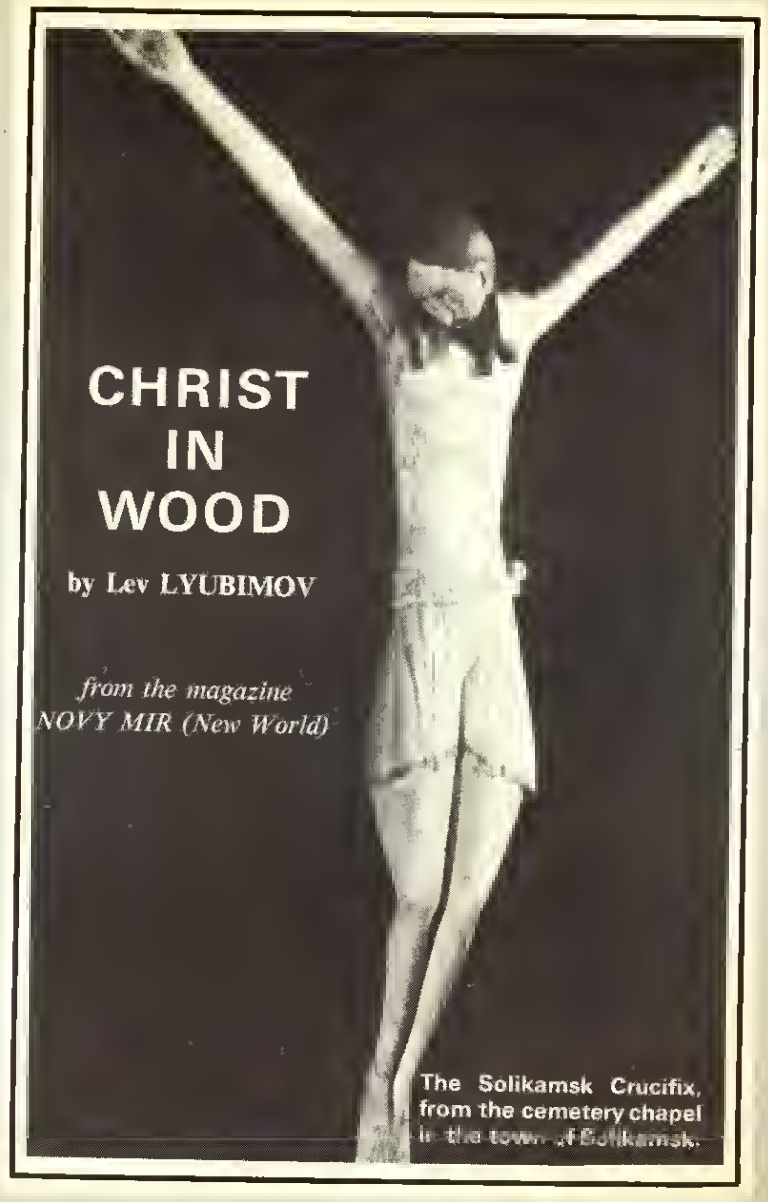
FLYING SQUID

The research vessel *Izumrud* (Emerald), of the Pacific Institute for Fishing and Oceanography, was in the Pacific seeking new fishing grounds where squid might be found.

One night a rain of luminous shapes pelted the deck.

The unexpected "attack" turned out to be from a type of flying squid that reach five feet in length and are able to leap some 20 feet into the air.

from the newspaper SOVIETSKAYA ROSSIYA



The Solikamsk Crucifix, from the cemetery chapel in the town of Solikamsk.

THE Art Gallery in Perm, a city in the Ural Mountains, was set up in 1922. It is, without exaggeration, one of the best regional art museums in the country. What makes it special is the collection of wooden sculptures dating back to the seventeenth and eighteenth centuries.

Working in birch, lime and pine, unknown wood-carvers created a gallery of portraits of Christ, infinite in their variety and expressiveness.

The sculptures all come from churches and chapels in small towns and villages in the region and are usually named after the town or church of origin.

When I first entered that section of the gallery devoted to the sculptures, I was most struck by the large Crucifix of Solikamsk. It comes from a cemetery chapel in the town of the same name. The long gaunt hands stretch upwards, the narrow, drooping head is half-hidden by dark curls, the body is intentionally elongated and the legs are bent at the knee. The attitude of the whole figure gives it a strange expressiveness.

I passed on to the Ilyinsky Crucifix. It is darker in tone and the face is oriental, Tartar probably, with high cheekbones and fleshy nose. The eyes are closed, the ribs hollow and protruding. The whole exudes sorrow and suffering.

The Rubezh Crucifix, according to legend, floated down the Kama in 1755 and lodged at a bend in the river opposite the Church of Rubezh

Seated Christ, from the "dungeons" in the church at the village of Ust-Kosva.

Left: *The Rubezh Crucifix. According to legend, it floated down the River Kama in 1755 and lodged in a bend opposite the Church of Rubezh.*

Below left: *Head of Christ: detail from Crucifix, from the village of Yugo-Kamsk.*

Below right: *Lord of Hosts in the Clouds, from a church in the town of Lysva.*

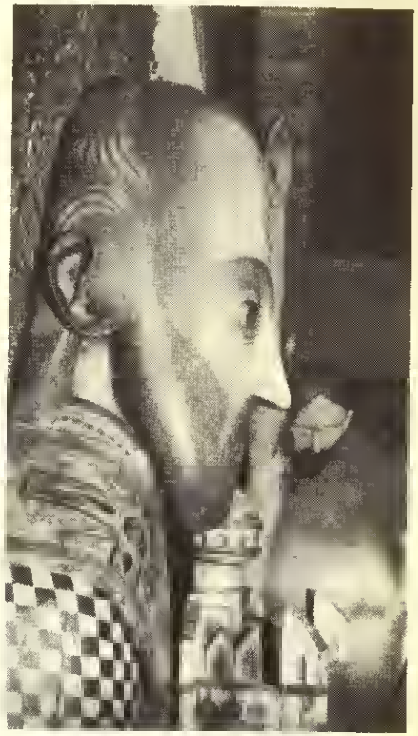
in the town of Usolye. Believers took it into the church. This Christ has a Mongol face, simple and majestic; a high chest, muscular legs and arms. The body is strong and supple.

Facing the crucifixes are seven or eight life-sized, seated Christs. These were found in churches or chapels, sitting in "dungeons" behind locked doors and barred windows, and were created to commemorate the humiliation of Christ imprisoned.

One is naked, another is dressed in a blue Perm "shabur", a festive robe with a bright girdle. One face is typically Russian, another pure Komi-Permyak. A full range of feelings and reflections are mirrored

Below left: *Christ in Agony, from a chapel in Solikamsk.*

Below right: *St. Nicholas (detail), from the village of Pokacha.*

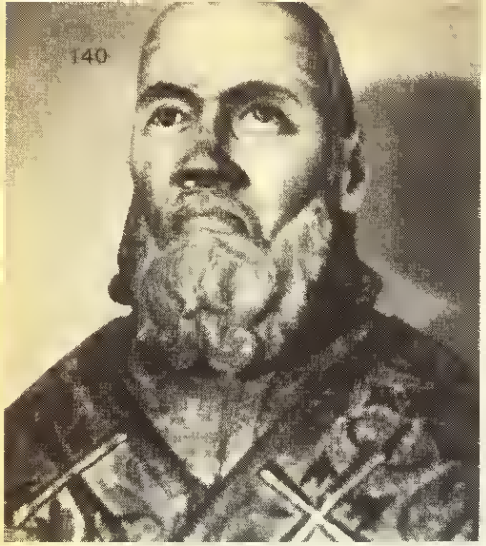


in their faces. One has horror in his eyes, another grief, another grave sorrow, and still another the mute question: "What is my crime?"

In one corner a "dungeon" is reproduced, richly ornamented with angels and columns. The suffering Saviour inside seems still more forlorn. He is the incarnation of all the humiliated and scorned of the world.

But next to him is a majestic Lord of Hosts in the Clouds. He is grandiose, shining, with a triangular halo, carrying a sceptre in his right hand and an orb in his left.

The individual names of the sculptors have in most cases been



forgotten. But the power of their conception, the rich variety of cultural streams—Russian, Tartar, Mongol, Polish—and their unique imagination and execution have combined to create an immortal treasury of art.

Above: *Christ in Incarceration (fragment), from the village of Pashiya.*

Above left: *St. Nicholas (fragment) from the village of Zelenyata.*

Below: *The Ilyinsky Crucifix, from the cemetery chapel in Ilyinskoye.*

MICRO-ART FROM ASHKHABAD

by Vadim RYBIN

from the weekly KNIZHNOYE OBOZRENIYE (Book Review)

V. Kogdin, an artist from Ashkhahad, decided to make a souvenir miniature of the 20 best poems of Makhtum-Kuli, 18th-century Turkmenian poet —a matchhox-sized hook with an etched verse, an illustration and a traditional national design on every page.

The microscopic writing had to he etched with the aid of a magnifying glass—and there were up to a thousand letters in each poem.

The volume contained 20 miniature etchings and hundreds of vignettes.

Two weeks' painstaking work was required to etch each poem, provided no errors were made. Whenever the artist's eyes grew tired and he missed a letter, the work had to be started afresh. Everything was done hy hand.

The artist cut the paper himself for the miniature hook, printed the sheets and hound them. It took two-and-a-half years to finish the first exquisitely heautiful miniature book, although the artist got help from his wife, Lydia, his wife's sister and his neighhour, Yuri Kudrin, a crane-driver who is a great book-lover.

One thousand copies of the hook were shown at EXPO-67 in Montreal.

DISCRIMINATING SEAL

A new variety of seal that will not reduce the fisherman's haul was discovered in the Kurile Islands in the Far East. The seal, which has been given the name "antur" by local people, seems to discriminate between those fish the family table needs and non-commercial fish.

It eats only non-commercial fish, crustacea and molluscs.

The antur is large—up to 6ft 6ins. long and weighing up to 450 lbs. Its body is covered with tough thick hair of various colours.

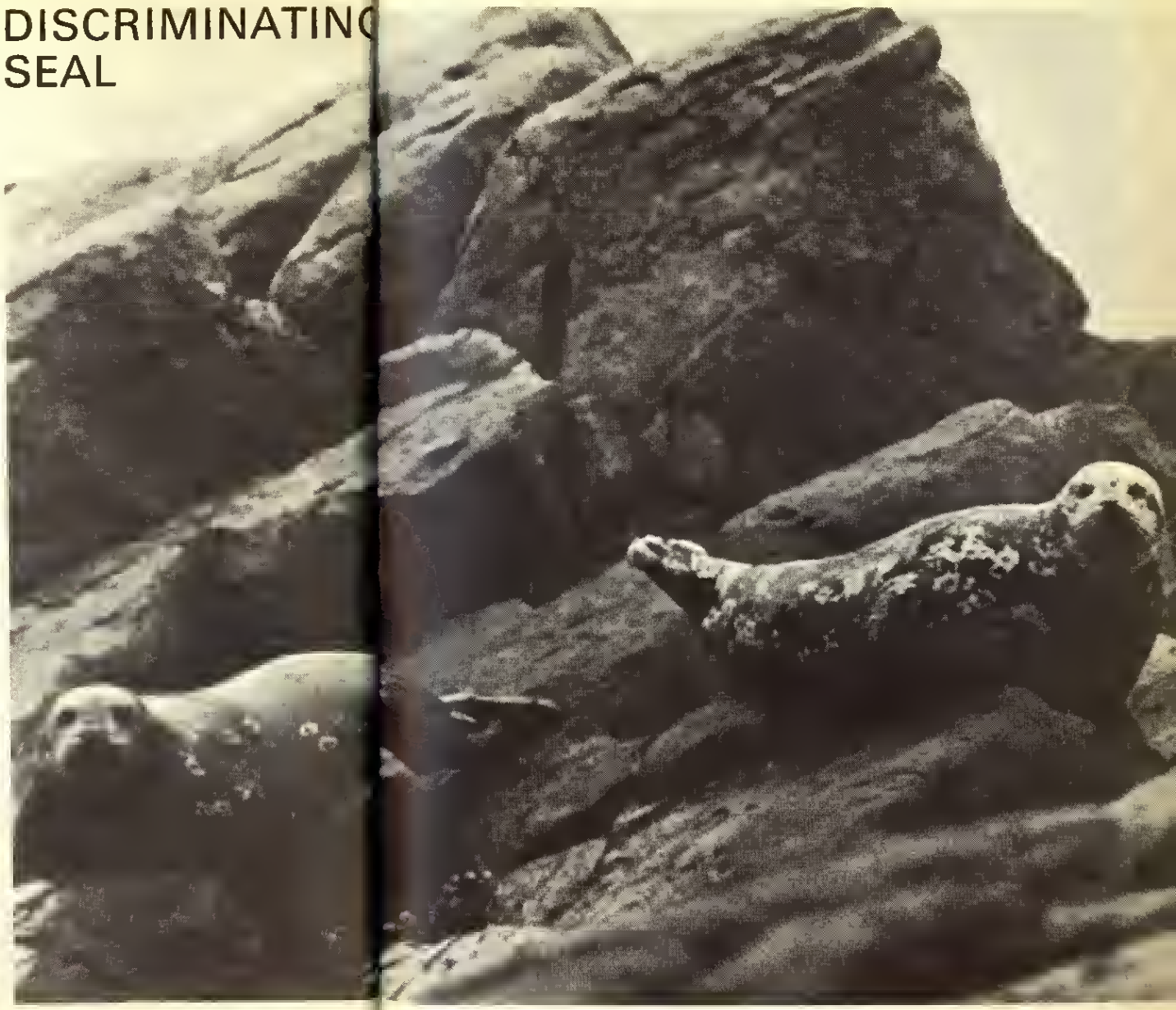
Some seals are light grey, some yellow or light brown, with a few velvety black species, and they look especially attractive because of their wide circular, light-coloured markings. On some seals the rings overlap in a lacy pattern, and on others the rings are wide apart and easy to count.

When the antur was first discovered in the Kuriles in 1963, it was regarded as a variety of common seal. Then the antur was identified as a unique variety.

It has lately been found, not only in the Kuriles, but along the whole coastlines of the Commander Islands and Kamchatka. Some specimens occur around the Aleutian Islands and along the Western coast of North America.

The Soviet Union has between 5,000 and 6,000 of these beautiful antur seals.

—from YUNI NATURALIST



ARCHIMEDES WAS CALLED SASHA

by Yevgeni RUMYANTSEV

from the student newspaper MOSKOVSKY UNIVERSITET

When the smoke cleared from the terrific explosion, Sasha Glusbchenko, second-year student, emerged from a barrel with DIOGENES inscribed on it in block letters. He was impersonating the Greek philosopher who, according to legend, cared not for comfort and lived in an empty wine-barrel.

Then the Master of Ceremonies ordered that Archimedes be carried out, firing several blanks from a starter's pistol to give emphasis to the command.

Four strapping young men bore Archimedes off, to the strains of a brass band. This time Archimedes sat in a bath-tub on their shoulders. *"The old man's 2,250 years old! Happy birthday!"* Thus Archimedes was greeted by a huge poster at the main entrance.

This performance, on May 12, 1962, was the third such student celebration at Moscow University Department of Physics. The first was on May 12, 1960, and since tben the commemoration has become traditional, with frequent innovations by the students. In 1960, for example, Archimedes walked out of a huge textbook called *The Principles of Physics.*

Sasha Loginov played Archimedes the first three times. Sasha graduated, and the honour of portraying the genius of ancient Syracuse went to another Sasha, physics student Konoshenko. The third Archimedes was Sasha Gusev. That really established the Sasha succession, now as firmly entrenched as the commemoration's main elements.

On the platform Archimedes moves towards the microphone

Continued on Page 148

"Sasha Archimedes" acknowledges his disciples, and 22 centuries of physics give salute.

Right: Diogenes was also called Sasha (second-year student Sosha Glushchenko).

Below: A representative of o rival science, chemistry, demonstrates with flask in hand the obsurdity of Archimedes' law.

Below right: Ivan the Fool, one of the many Russian folk-tole characters who turned up at the celebrations.

Bottom: Roentgen, Lomonosov ond Einstein unanimously concede first kick at the ball to Archimedes.

Above: Ceremonial morch-past of representatives of various faculties in tribute to Archimedes. The first-year students in white represent ancient Greeks from "Syrocuse State University."

Left: Lomonosov, father of the university, introduces Archimedes to the assembly. Then Lomonosov offers to exchonge wigs with the old scientist!

and asks, "What have you achieved, O descendants of mine?"

Twenty-two centuries of physics give salute. The grand old man of science is approached and greeted by those who have carried his torch: Galileo, Newton, Toricelli, Lomonosov, Roentgen, Lebedev, Popov, Einstein. Astronauts in spacesuits take part in the procession.

Old man Archimedes is obviously pleased. Charmed by his smile, Lomonosov offers to exchange wigs with Archimedes. Then Archimedes thrice cries, "Eureka!" The entire student body repeats it as a kind of war cry and oath.

First-year students in white tunics represent ancient Greek students of "Syracuse State University". Second-year students in working clothes, and bolding monkey-wrenches, march past Archimedes and announce their achievements. Then girls in national Russian costumes sing satirical songs about their life in university hostels and their lab. work.

Foreign students also take part. Luigi Ceresa plays Galileo, Sergio Gessetti is Toricelli and Golo Manlio, Fermi. A German Democratic Republic student, Reiner Link, plays Albert Einstein.

Students met teachers in sports contests on Archimedes Day, and in the evening queued for tickets for a comic opera, *Archimedes,* written by students themselves. As night fell on the Lenin Hills, students marched by torchlight around the university building for the finale.

Famous foreigners among guests of the student body during the Archimedes celebrations were Danish nuclear physicist, Niels Bohr, and American physicist, William Shockley. Well-known Soviet scientists, Lev Landau and Igor Tamm, also attended.

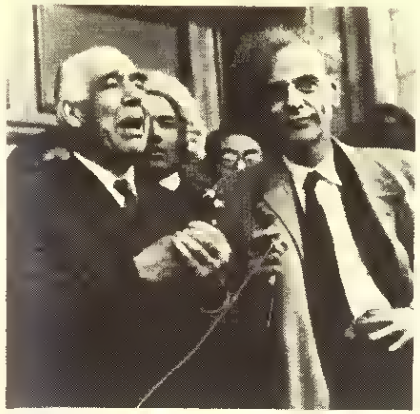
Niels Bohr, after watching the student opera, commented, "I've learned many new things about physics."

He said during the celebration, "Scientists from many countries stand here next to Archimedes. That is symbolic. The achievements of modern science have become possible only because of the joint efforts of scientists around the world."

The Archimedes celebration, originally run by the Physics Department, has become an all-university affair. Guests come from other Soviet universities, including Kiev, Tallinn, Tbilisi, Kazan and Novosibirsk.

Dmitri Mendeleyev Day has now been launched by the Chemistry Department. Principal hero of this celebration in 1966 was Hydrogen; in 1967, Helium; in 1968, Lithium.

By the year 2069, the Periodic Table of Elements will have been used up. What then? the chemists ask. They hope that before the century runs out, physicists will be able to synthesize new elements: then tradition will be maintained.



Left: Niels Bohr and Lev Landau were honoured guests.

Below: William Shockley, inventor of the transistor and Nobel Prize winner, enters into the spirit of the thing with an appropriate speech.

AN EARTHQUAKE IS EXPECTED IN . . .

by Boris OSTROVSKY
from the magazine ZNANIE-SILA

YOU WILL FIND IN THIS ARTICLE:

- ***What infrasound is.***
- ***Why it can bring terror.***
- ***How the "infra-ear" of the jelly-fish forecasts storms.***

Half a century ago, Gilhert Miller, producer at the Lyric Theatre in London, was faced with a prohlem: he wanted to create an atmosphere of mystery in the middle of a play when the action shifted from the contemporary scene to antiquity.

He tried various means, including the use of unusual costumes and sets, hut nothing produced the effect he sought. Finally, a well-known physicist of the time, Rohert Wood, offered a possihle solution. He suggested the use of low, almost inaudible sound to produce the desired effect.

The next day a great long pipe was connected to the organ in the theatre. But Wood seemed to have made an error in his calculations, for the pipe failed to give forth any sound. However, the crystal pendants on the candelahra in the old hall tremhled, and a sensation of unreasoning fear ran through the audience. There was panic even outside the theatre.

Now let us turn to another story which may at first glance seem totally unrelated to the one told above. Do you remember what happened to the heroes of Jules Verne's novel, *Captain Grant's Children,* in the Andes? After a strenuous mountain climh, the travellers settled down to rest in a hut. Suddenly they heard an unusual sound. When they ran out, they were greeted hy a strange sight:—

"... An avalanche of living creatures was pouring down towards the plateau. Hundreds, perhaps thousands of animals were running hlindly . . . Glenarvan and Robert harely had time to throw themselves to the ground when this living whirlwind swept past just a few feet ahove them . . ."

Several hours later, the travellers understood: they were running because they had sensed there was an impending earthquake.

It is known that animals sometimes have a presentiment of natural calamities—storms, volcanic eruptions, earthquakes. Jelly-fish, for example, can sense a storm 10 to 15 hours before it actually occurs, and will leave shallow waters and go into the deep sea.

Some Japanese households keep fish which start dashing ahout the aquarium a few hours before an earthquake. Deep-sea fish, on the other hand, are known to come up to the surface of the water when there is an approaching calamity.

The physics of presentiment

Can animals foretell calamities? And if so, how?

It is sometimes assumed that the warning signal of an imminent calamity is transmitted hy infrasonic waves—a result of the accumulation of elastic energy which could cause rocks to rupture. A storm is also preceded hy infrasonic oscillations.

This hypothesis, however, raises a question. Seismic stations daily register a large number of weak earth tremors. How do animals distinguish such vihrations from those that precede earthquakes?

First of all, there are two kinds of seismic oscillations, longitudinal and transversal. Longitudinal oscillations are transmitted through atmosphere and water, while transversal oscillations are transmitted only through the earth. The warning signal of an earthquake is possihly made up of hoth longitudinal and transversal oscillations in a certain ratio.

Some animals are capable of hearing sounds which are too low in frequency to he detected by the human ear. This fact has been estahlished hy a conditioned reflex check. A low-frequency signal was transmitted during the feeding of an animal; later, the animal reacted to this signal in the same way as it did to food.

Thus it was found that some animals can hear sounds with a frequency of twelve or even eight cycles per second. Man, on the other hand, cannot hear sounds with frequencies helow sixteen cycles per second.

Now we can understand why the jelly-fish leaves the shore hefore a storm and deep-sea fish rise to the surface before an earthquake. Infrasonic waves affect the jelly-fish from above, whereas they affect the deep-water fish from helow.

But are the animals affected directly by low-frequency oscillations? Or are the jelly-fish and the fish driven away from the infrasonic source because of an inherited memory, which has retained knowledge about dangers that are accompanied hy infrasonic waves?

We are as yet unahle to answer this question. One thing is certain: in the two stories told at the beginning of this article, it was infrasound that was at work. It was the cause of panic in both instances.

Perhaps it's dangerous?

In 1934 the Russian psychiatrist, Mikhail Nikitin, noted instances of epileptic attacks caused hy the sounds of an organ. Perhaps here,

too, infrasound was the true culprit.

Actually, together with musical tones which are quite discernible by the human ear, there are always present low, inaudible oscillations due to the vibrations of organ pipes.

One can, of course, argue the opposite way by saying that the psyche is affected by a subjective emotional factor—the music. But what about the case of Wood's pipe? There the audience did not hear any music.

It is difficult to explain why infrasound should evoke certain psychic reactions in man. We can only guess at some of the reasons.

It is quite possible that every vibration entering our ears passes into the brain. Apparently the low-frequency signals suppress the normal rhythm of the brain and thus produce a depressing effect on the psyche. What happens is that in the process there are "collisions" between different frequencies in the brain—the "physiological" and the "mechanical"—leading to fatigue, neuroses and fear.

From city traffic and factory buildings come sounds of different frequencies, including infrasonic frequencies. Hence the battle against noise, which causes irritation and fatigue in man. Few of us, however, are concerned about sounds with infrasonic frequencies as we do not sense them directly—they are inaudible.

However, these vibrations are also infrasound, and the danger of constant vibration is well known to specialists dealing with industrial health. Obviously we should be more on our guard against sounds lying below the threshold of audibility.

Nature tunes our ear

For inhabitants of the primordial ocean, it was advantageous to develop an "ear" for infrasonic waves, since they accompany every motion in water. When living creatures left the water for dry land, their range of audibility shifted into higher frequencies. Thus appeared the cochlea of the inner ear.

Changes also took place in the balance-determining otolithic apparatus in the ear, the structure of which resembles the "infra-ear" of the jelly-fish.

In jelly-fish this "ear" performs the role of the vestibular system—the balancing apparatus—at the same time. In higher animals the hearing system is separate from the balancing system. And since the latter had become less sensitive to sounds with infrasonic frequencies, many land animals ceased to sense the signals of an approaching storm. However, these animals do hear "high-frequency" infrasound—the minute noises made by grass and leaves, water, wind.

But why is it that men do not hear infrasound? We know the answer to this question. Thanks to their sense organs, animals can discern approaching enemies, and find food and water. The more acute the sense organs, the more chances an animal has to survive and continue its species. But man no longer simply adapts himself to nature: he also changes nature to suit himself. His keenness of hearing, smell, sight and touch is not what determines his fate.

As a result of the development of society, man's sense organs have gradually become blunted. A great part of the information about the world he lives in comes to him through technical channels of communication. It is possible that the ability to perceive infrasound has been lost to man relatively recently and has not yet completely disappeared. Only we are not consciously aware of it.

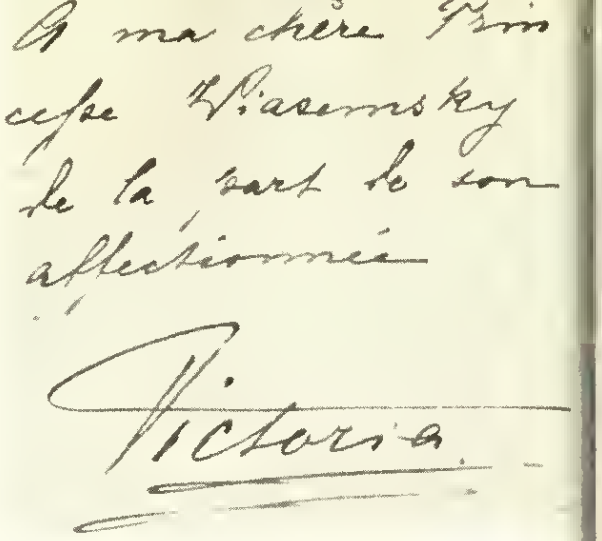
How will the "infra-ear" function?

Approximately 150 devastating earthquakes are recorded each year. According to UNESCO data, 14,000 people die annually as a result of earthquakes. However, such tragedies can be avoided if we learn to forecast earthquakes sufficiently well ahead.

If the secret possessed by animals of forecasting earthquakes is primarily connected with infrasonic waves, then we can construct a bionic apparatus capable of detecting the infrasonic "overtures" that precede an earthquake.

Soviet scientists have already made an apparatus that works on the principle of the "infra-ear" of jelly-fish, which can foretell a storm long before it breaks out.

Probably the time is not far off when the inhabitants of the seismic regions will hear over their radio the alarm signal: "Turn off electricity, take precautions against fire, evacuate buildings! The infrasound bureau warns that an earthquake is expected in this area in two hours. . ."



Affectionately, Victoria

by Boris SHAFER

Historical mysteries hold an irresistihle attraction for me. When someone tells me that they found great-grandmother's diary in a trunk, or a hundle of yellowed letters tied up with a faded rihbon, I am never satisfied until I have a chance to read them. After all, who knows what forgotten sidelight of history may be discovered?

It was thus with a pleasurahle sense of anticipation that I sped to the flat of a distant acquaintance of mine, N.N. The old lady had telephoned to say that she had a historical document of some value and would I he interested in looking at it?

With some ceremony she seated me in an armchair and handed me a hlue envelope. Inside, wrapped in tissue, was a heavy sheet of paper.

When I unfolded it, I saw the British Royal coat-of-arms and crown, and underneath, printed in large letters, the name "Victoria". Below that, in a sweeping, feminine hand, were the words in French, "To my dear Princess Wiasemsky, affectionately, Victoria."

I settled deeper in my chair, expecting that N.N.'s story of the document would answer all the questions in my mind.

Unfortunately, this did not turn out to he the case.

It seemed that in the summer of 1926, N.N. and her sister were staying in the country. One of their neighhours was the Countess Gorchakoff. She was a feehle old lady and the two women were glad to do little errands for her—huy food, post letters, etc.

On the day of N.N.'s return to Moscow, the Countess Gorchakoff called her and said she would like to give N.N. a small token of her appreciation for all the things she had done for her. She had an autograph of Queen Victoria and would like to present it to N.N.

And so for some 40 years, the sheet of paper had remained in a drawer of N.N.'s desk.

Ohviously her story left most of the questions in my mind unanswered.

With the aid of experts, it was not difficult to estahlish that the signature was genuine and that it had heen written some time in the fifties or sixties of last century. But to which Wiasemsky (Vyazemsky) was it addressed? And the letter must have accompanied a gift of some kind—what was it?

The Vyazemsky family was one of the most ancient lines of the Russian nohility. It was founded hy Vladimir Monomakh's grandson, Rostislav Mstislavovich, the first Grand Prince of Smolensk province (1128).

One of his descendants, Andrei Vladimirovich, received a tenure around the town of Vyazma early in the thirteenth century. Hence the name, Vyazemsky, which has loomed large in Russian history. In more recent times, the hest known of the family were Pyotr (1792-1878) and his son Pavel (1820-1888).

The Count Pyotr Vyazemsky was a poet, novelist and literary critic. He was a friend of Alexander Pushkin's, and familiar with many outstanding Russian men of letters.

In outlook he was a liheral and a democrat, and at one time participated in drawing up a plan for the emancipation of the serfs which was presented to Czar Alexander I.

This incurred royal displeasure . . . and Vyazemsky was put under secret police surveillance. Twenty years passed hefore he was again allowed to hold a government post. In 1858 he, with his wife Vera, went to live ahroad.

The Vyazemskys lived much of the time in London. There is no douht that the Countess would he received at Court and it is quite possihle that the letter was addressed to her.

This supposition is borne out hy the following entry in the diary of Pyotr Valuyev, Russia's Minister of Home Affairs:—

"On March 14, 1874, Countess Vera Vyazemsky returned from London, very enthusiastic about the reception accorded her there. Times are changing. Russian culture and the Russian language are becoming known in England."

However, there was one other Countess Vyazemsky in London at the time—Maria, daughter-in-law of Vera. It is not impossihle that the letter and presumed gift were addressed to her.

And I really would like to know.

The theft of the 50 million dollar Amber Room and the long, long search for it

THE AMBER MYSTERY

by Veniamin DMITRIEV

from the book

THE AMBER ROOM AFFAIR

The adjutant tiptoed into the room of General Field-Marshal Kùchler. The commander of the Kònigsberg Military Area was having his after-dinner nap on the sofa.

"Excuse me, Herr General," the adjutant said with a guilty air. "You are wanted on the telephone."

"I gave orders not to be disturbed!" barked Kùchler.

"B-b-but it's Herr Gauleiter Koch on the phone . . ." the adjutant stammered.

The talk was a brief one. Tbe next day, General Kùchler sent off a group from the Einsatzstab (the special organisation set up by tbe Third Reicb to arrange the shipment of art treasures out of occupied territory) to the occupied town of Pushkino, not far from Leningrad.

There, at the former palace of the Czar, was the legendary Amber Room, valued by experts at fifty million dollars.

★ ★ ★

The royal command was unequivocal: Make something no

monarch has or ever has had. Something like an eighth wonder of the world . . .

In 1709, work on the "wonder" was completed—and the fame of the fabulous Amber Room that served as the study of the Prussian King Friedrich I spread round the world.

Its walls were covered with polished amber mosaic. The amber panels, 65 square yards of them in all, were supplemented by fretwork in relief, with designs of coats of arms, monograms, and garlands of flowers. Picture frames, bas reliefs and sculptures were all done in amber. Some miniatures in relief had such a filigree quality that the details could only be distinguished with a magnifying glass.

The original creators of the amber room—Schüter, the architect, and Gottfried Tusso, a jeweller—were justly proud of their work, and expected high honours.

But there was trouble in store. The amber panels, fixed insecurely to the walls, collapsed. Tusso was arrested on a charge of high treason, Schlüter was exiled, and the Amber Room was dismantled and packed away in boxes.

A few years later the Prussian king, wanting to acquire a powerful ally in the war against Sweden, presented the Amber Room to Peter the Great of Russia.

For a considerable time after that there is no record of the room. Then in 1755, the Russian architect Rastrelli was ordered by Czarina Elizabeth to restore it and instal it in a salon of the new imperial palace at Tsarskoye Selo, near St. Petersburg.

Seventy-six of the strongest men in the Royal Guard set off on an unusual march from St. Petersburg to Tsarskoye Selo. They proceeded in double file, taking turn and turn about with the heavy, highly valuable load, changing over every few hours. Six days were required to complete the move after which it took Rastrelli several months to create what came to be known as a poem in amber.

★ ★ ★

Lorries drew up at the palace entrance. They carried huge boxes and bales of cotton wool.

A solid ring of troops formed up round the palace. The muzzle of a sub-machine gun glared into every window of nearby houses—the residents were forbidden to look out.

The first pair of soldiers emerged on to the broad porch, carefully carrying a great long box. They trod cautiously, scarcely moving their feet each time, and hardly lifting the soles of their jackboots from the steps.

In a few hours a voice called out from within the palace.

"That's all!"

★ ★ ★

Dr. Rohde was a man with no interest whatever in politics.

Even the tragic events in which the world had been embroiled since 1939 had barely touched him. He had one passion, a fanatical passion—amber.

As a student he had studied and collected this petrified resin, which seemed almost alive to him. When he spoke of amber he waxed poetic. His knowledge of it was so vast that in many countries he was considered an unsurpassed authority on the subject.

Having become director of the Arts Museum in Königsberg, Rohde acquired a second responsibility—that of custodian of the wonderful Königsberg amber collection. It was a dazzling collection, and many of its 70,000 exhibits were unique. It contained the biggest piece of amber in the world, weighing about seven kilograms. Dr. Rohde's pride was a lump of amber with a petrified lizard embedded in it.

It was to this museum, into the keeping of Dr. Rohde, that the Amber Room was delivered.

Rohde was beside himself with joy; he locked the door and opened the boxes, to spend hours taking out the mosaic panels and sculptures with his own hands, lost in admiration. . . .

The time came when Russian air-raids on Königsberg grew more frequent. Once again the Amber Room was dismantled and packed in the boxes. Then on March 4, 1945, Erich Koch turned up unexpectedly at Königsberg Castle.

★ ★ ★

Erich Koch fancied himself as an art connoisseur.

That was probably why he pillaged the museums and private collections to the nth. degree in all the occupied towns. And as Gauleiter of Poland and the Ukraine he had extensive possibilities! Although, it is true, he had a serious competitor in Hermann Goering. But then there are plenty of museums in Europe. . . .

Koch came to a standstill in the middle of the salon which, until a short time before, had housed the amber collection.

"Where is the Amber Room?" he demanded.

Aware of the Gauleiter's temper, Dr. Rohde could not bring himself to answer. The question was taken up by one of Koch's adjutants.

"The Amber Room is here, in the vaults, Herr Gauleiter," Rohde said in a whisper.

"It hasn't been removed?" Koch tapped a highly polished jackboot several times with his riding crop. "You understand what that could mean to you?"

Rohde, white as a ghost, did not reply.

"Something must be done!" Koch said, his voice now calm.

No-one ever knew what instructions Koch gave Rohde, for during their talk he even sent his bodyguards out of the hall.

All that is known is that on April 5, the boxes containing the amber were in the vaults of the castle. And on that day Dr. Rohde disappeared.

He reappeared in the town on April 10, and no-one knows where he spent the intervening five days. When the Soviet troops entered the town the boxes were no longer in the castle.

★ ★ ★

There was nothing to keep Dr. Rohde in Königsberg.

The museum building was in ruins. His children, now grown up, did not live there but somewhere in Central Germany. He did not even own a house there. For some years he and

his wife had lived in a rented flat.

What made him remain in the town even after the arrival of Soviet troops? Perhaps the secret that had been eotrusted to him?

Immediately after the capture of Konigsberg, Professor Barsov arrived in the town. His was the task of searching for the treasures formerly housed in the museum and taken off by the Nazis to East Prussia. He quickly sought out Dr. Rohde, with wbose monograpbs and articles he had long been familiar, and drew him into the work.

But Professor Barsov was looking for paintings. He was not interested io the Amber Room.

Professor Barsov slipped up badly.

He failed to notice that Dr. Rohde made several attempts to be alone with his Soviet colleague, and was extremely wary and reserved in the preseoce of his compatriots. Oo December 14, Robde lingered in Barsov's study, having clearly stayed behind on purpose. He attempted to get into conversation, but Barsov was busy and paid oo attention to him.

The next day Dr. Robde and his wife were found dead in tbeir flat.

Two coffins were loaded on to a cart, and the unpretentious funeral cortège, escorted by several unknown men, set off for some unknown destinatioo. . . .

Dr. Paul Erdmann, who signed the certificate giving the cause of the deaths of both Rohde and his wife as dysentery, disappeared from town.

So tbe most hopeful line of investigatioo that might have led to the Amber Room was cut off.

The search for the Amber Room has been going on for more than twenty years.

Hundreds of witnesses have been questioned, dozens of documents examined, and excavatioos undertaken in oumerous places.

Several times it has seemed as though tbe secret was on the point of being revealed.

In 1949 a Lithuanian, Adam Grossas, who before the war had lived in East Prussia, declared that he koew where the Amber Room was hidden.

Grossas stated that in 1945 a number of lorries laden with boxes bad driven out to a pier oo the Baltic coast. The boxes had been transferred to a tug, which bad pulled out to sea and dropped anchor about 150 yards from the shore.

There the boxes had beeo thrown overboard.

Divers found the spot quite quickly. There were thirty great boxes —and they contained, for some unknown reason, parts taken from the Mercedes Benz motor works in Königsberg.

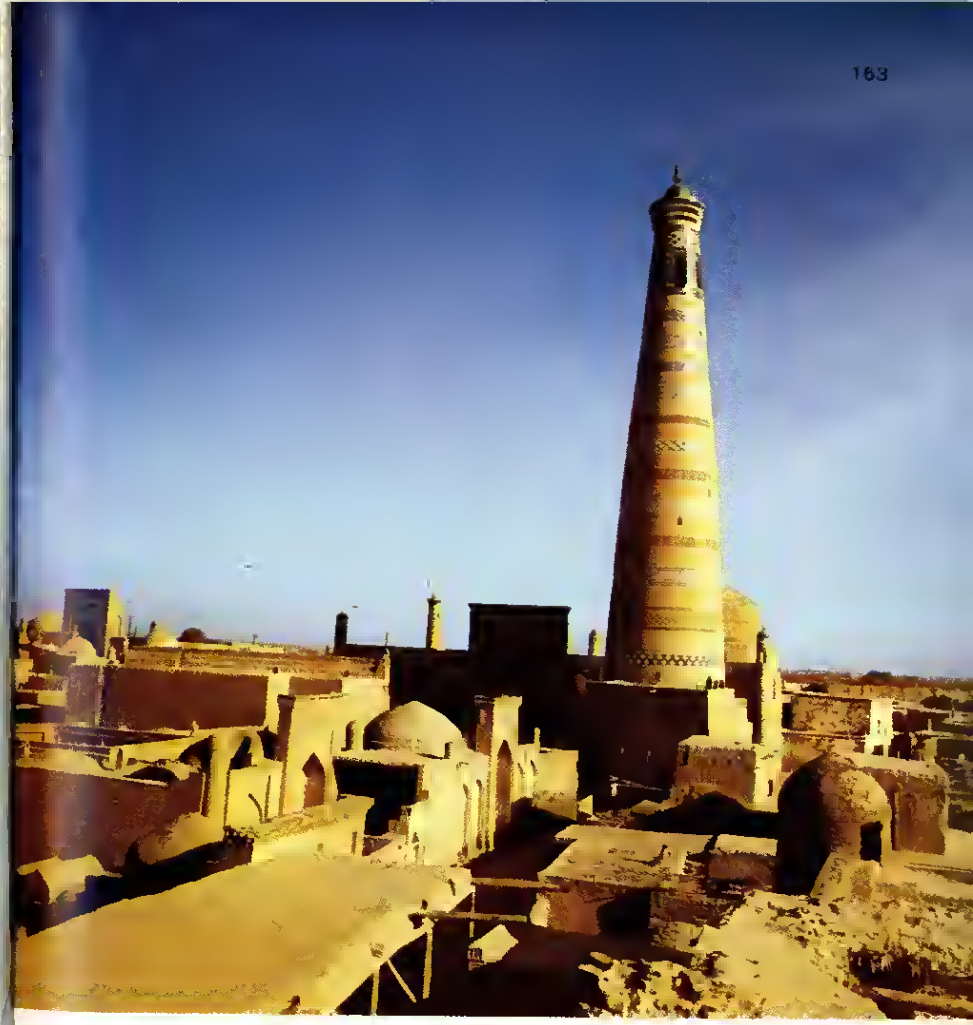
In 1965, while serving his time in a Polish prison, Erich Koch suddenly announced his readiness to give some information about the whereabouts of the Amber Room. It was, he declared, concealed in a dug-out on the outskirts of Kaliningrad (formerly Konigsberg). But on grounds of poor memory, Koch bas still not managed to recall tbe precise location of tbe dug-out.

The Amber Room still has to be found.

The unfinished Kalta-Minor Minaret—one of the wonders of the medieval Orient.

THE BREATH OF THE ANCIENT EAST

by Vladimir BABKIN



One of the most important political and cultural centres of the medieval East, old Khiva looks much as it did in ancient times. Mosques and minarets enclosing narrow streets retain their old colour and beauty as glimpsed on these pages.

Six hundred years ago, the Uzbek city-state of Khiva was ruled by Khan Pahlavan Mahmoud, a man who was famous in his lifetime, but even more so after death.

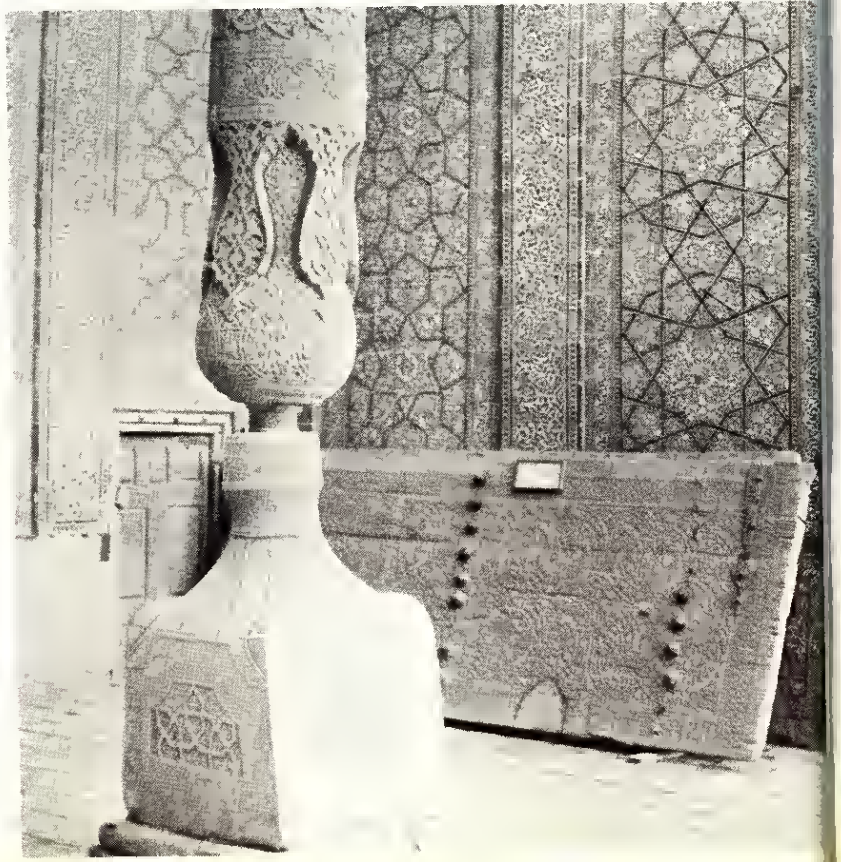
Mahmoud was the best wrestler in Central Asia. He was known as far away as India and he won every wrestling contest in the country. But this was not all. Among other things, the Khan was acclaimed as poet and musician—although his references to the Koran were highly irreverent.

Yet after his death he received still another distinction. He was canonized. The mausoleum built to honour Pahlavan Mahmoud is

Continued on Page 166

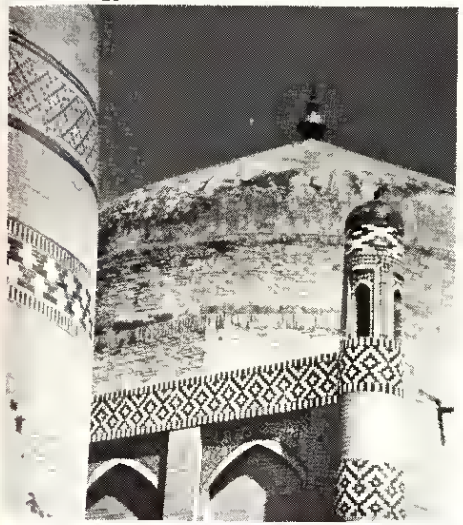
Below: This column is not from a mosque, but from an ordinary dwelling-house in Khiva.

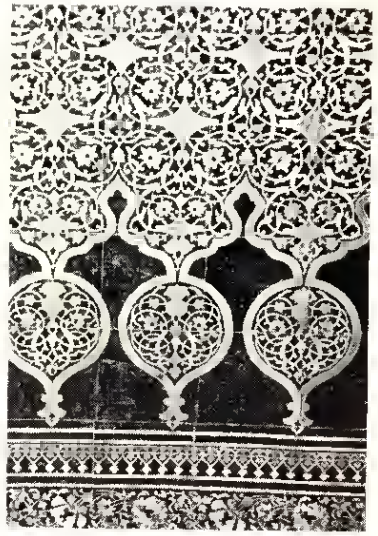
Above and below: The dazzling intricacy and design of these examples show why Khiva's skilled wood-carvers have been renowned over the centuries.



Left: The southern gates of Khiva. It was through these that travellers from distant Araby entered the city.

Below: Minarets and mosques—the Khiva khans built these in the hope of winning everlasting fame.





Above: Fanciful patterns on gleaming glazed tiles.

Left: The Allakuli-Khan Madrasah (Mohammedan college.)

The stone-carvers of Khiva have no less a reputation than its wood-carvers.

still one of Khiva's most beautiful architectural monuments.

Today Khiva is a little town lost among the oases of Khorezm. But in its heyday, hundreds of years ago, it was the most important political and cultural centre in Central Asia after Khorezm. From the early seventeenth century, right up until 1920, Khiva was the capital of a large khanate, at first independent, but later a vassal of Russia's. This however, did not affect the despotic rule of the local khans. who went on enjoying an idle and luxurious existence, spiced with barem intrigue.

Life went on as it had for hundreds of years before: great masterpieces of architecture were commissioned, heads were chopped off right in the middle of the market place, and refractory slaves had their ears nailed to the city gates.

In 1920, the people of Khiva rose up in rebellion, overthrew the Khan and proclaimed their country a republic, later becoming part of the Soviet Union. The city gradually

spread out; its medieval centre was surrounded by an industrial area. Today the old quarter is almost unaffected by development schemes, and looks just as it did hundreds of years ago.

In the middle of this sanctuary is the fortress of Ichan-Kala, nearly a thousand years old, probably the best-preserved piece of architecture in the East. The fortress is surrounded by a thick wall, 25 feet high, and so wide you could drive a car along the top. But the most amazing part was discovered some years ago, when a section of the wall collapsed.

Inside were human skeletons. The builders had immured slaves or prisoners of war there in the belief that this would add strength to the wall.

The fortress has four gateways—north, south, east and west—and its watchtowers have survived the stresses and strains of time.

Inside, Ichan-Kala is a maze of narrow streets. Here the khans had their palaces, here were most of the mosques and minarets. This section of the city includes an old Moslem cemetery and also a covered market. Resting in the cool darkness under the vaulted ceilings after a walk around the beautiful palaces nearby, you have the eerie feeling that at any moment you might see a character from the Arabian Nights walking out of a niche.

The vanity of the khans was boundless. One of them decided to build the tallest minaret in the world, and although after his death his successors gave up the idea, and Kalta-Minor remained unfinished, its splendid glazed-tile decor still amazes the visitor.

Local arts continue to flourish in Khiva today. It has hundreds of skilled wood-carvers and sculptors, engravers, jewellers, tile-makers, embroiderers on silk and velvet, metal-smiths and potters.

The chased metalware of Khiva is particularly handsome. Modern craftsmen make vessels in the same graceful shapes as their forefathers did, preserving the intricate surface ornamentation.

The city's ancient architecture is being restored to its former beauty by the Uzbek government. Old Khiva is still steeped in the fascination of the Orient.

Anyone going on a tour of Central Asia—Tashkent, Samarkand, Bukhara—should certainly plan to include Khiva, which is within easy driving distance. There is also a bus and plane service. Khiva is even worth a special trip. A one-way plane ticket from Moscow costs about £20 or fifty dollars, and the local Intourist office provides conducted tours and excellent service.

Three of the designers exhibiting at the International Fashion Show in Moscow, last autumn, afterwards went back to their studios to dream up ideas for American women.

They were Lina Telegina, Ira Krutikova and Slava Zaitsev, and their slogan was "*Your* materials, *our* ideas".

Under an agreement with the U.S. firm of Celanese Fibres, they had to create a collection made entirely from the firm's fabrics. Each was to produce ten designs: 2-3 for daywear, 4-5 cocktail dresses, and 3-4 evening dresses. Their

On previous page and left:
Two models designed by Slava Zaitsev. The first is a cocktail dress in the style of the old-fashioned Russian poddevka, *a long-waisted man's coat with a full skirt which narrows towards the bottom. The plaited buttons are decorated with precious stones, and a neat seal skin hat completes the outfit (page 169).*
The second, on the left, is a very feminine coat and sheath dress. Jewellery is gold with blue stones.

imaginations must have been fired, for the entire collection was designed, made and on display in Moscow in the incredibly short time of six weeks. It had plenty of variety for, unknown to one another, the artists had worked on three entirely different principles.

Lina Telegina was carried away by Russian national costume, and tried to preserve elements of it in her designs. In some cases it was the shirt line—that of the traditional Russian peasant blouse; in others, versions of the headscarves which have been

"The Princess Who Never Laughed"—evening dress in heavy pastel silk. The designer, Lina Telegina, has put the whole accent on the dress, which has a vivid lining. Pearl embroidery at hem and neck.

a feature of the country girl's dress for centuries. Sometimes she belted her dresses with a rope twisted from the basic fabric or from one used for trimming, and sometimes her models were decorated with embroidery in the old Russian style, with pearls, gold and silver.

Ira Krutikova was enthralled by the fabrics, which were delightful, ranging from fine silks patterned in a riot of colour to heavy quilted materials in soft pastel shades. Her models are based on combinations of clean-cut, very simple geometrical forms, with large unbroken surface

Left: *This festive ensemble for occasions at home, designed by Slava Zaitsev, consists of a short blouse, one-piece skirt, and widely flaring trousers. Embroidery on sleeves and collar repeats the pattern of the material*

Right: *"Butterfly" is a favourite of another designer, Ira Krutikova. Its purpose is a little difficult to define, perhaps, but the designer herself rather fancies it for receiving guests in the garden. It consists of a great circular cape worn over a leotard in stretch material. Gold sandals are sewn on to the feet of the leotard.*

areas. She has shown herself to have a whimsical turn of mind—some of her models seem to have been produced "just for the fun of it".

Slava Zaitsev teemed with ideas. Each model is a new conception, a new idea, which the artist has deliberately not carried rigbt through, having decided merely to hint at a trend.

This is his credo, by the way. "Tbe fashion artist produces a basic idea, not a design intended for one particular person. He sbould not have to produce detailed recipes: his task is to help people catcb the 'aroma' of the model,

Left: *Lina Telegina calls this cocktail dress "Ivanushka". It is based on the traditional Russian man's shirt, and is belted with a rope made from the material of the shirt. Sleeves and neck are embroidered with beads and spangles.*

Right: *The idea of this jazzy ensemble for house-wear, designed by Slava Zaitsev, was prompted by the material itself and its riotous colours. Turkish-trousered pyjamas in soft silk are worn beneath a slim satin coat, and the finishing touches are the oriental-style headgear and slippers made from the pyjama material.*

to infect them with its mood."

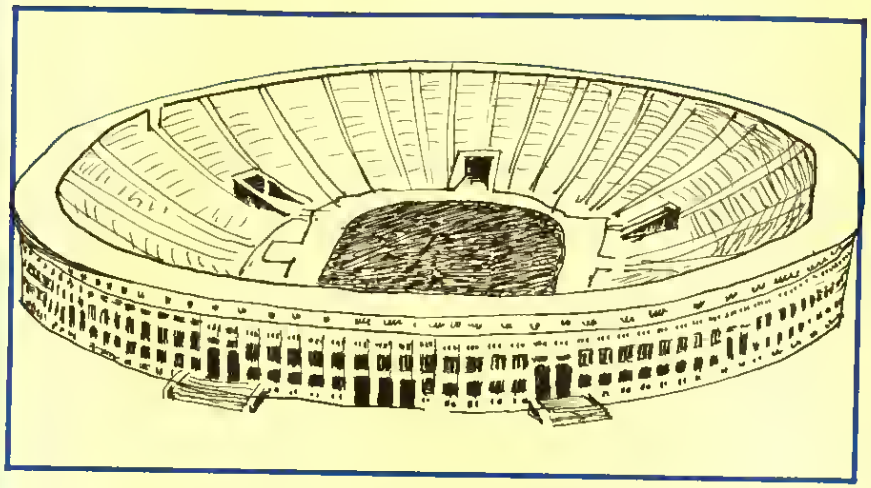
Hardly surprising that, to Muscovites, Zaitsev is known as the "fashion philosopher".

His designs are for the woman of 30, and his aim has been to be as practical as possible, and to keep extravaganza to the minimum. In this he has been helped by the restrained colouring of the majority of the fabrics, but he has not been able to resist the temptation of going in for a little fantasy when the material bas cried out for it. This has given his collection added interest.

This ensemble is Slava Zaitsev's favourite. It is called "Goya", and consists of coat and dress in heavy silk. The coat is semi-fitting, with a huge round collar, and it is worn over a straight dress with square neck and armholes. The coat collar is decorated with wide braid, dotted here and there with jewels, and the coat fronts have designs of flowers in the same braid. Lapels and hemline are edged with a wide band of different material, and the whole ensemble achieves its effect by a combination of various black materials of different textures.

RUSSIAN MADE EASY

Lesson Eight — Урок Восьмой



Sásha i Kólya na stadiónye

Саша и Коля на стадионе

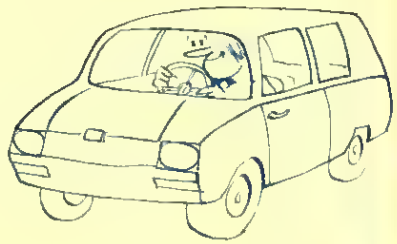
Sevódnya futból″nlı mátch. 1. Сегодня футбольный матч. Today football match.	There is a football match today.
Sásha i Kólya yédut na stadión. 2. Саша и Коля едут на стадион. Sasha and Kolya go to stadium.	Sasha and Kolya go to the stadium.
Oní pokupáyut bılyétl v kásse. 3. Они покупают билеты в кассе. They buy tickets in box office.	They buy tickets at a box office.
Sevódnya igráyut sil″nlye komándl. Сегодня играют сильные команды. Today play strong teams.	Strong teams are playing today.-

	Druz″yá idút na svoyí mestá.	
4.	Друзья ндут на свон места.	The two friends find their seats.
	Friends go to their seats.	
	Oní sidyát na sévernoı tribúnye.	
5.	Онн сндят на северной трибуне.	They sit in the northern stand.
	They sit on northern stand.	
	Igrá ıntyerésnaya.	
	Игра иитересиая.	The game is interesting.
	Game interesting.	
	Sásha i Kólya smótryat ıgrú	
6.	Саша н Коля смотрят игру	Sasha and Kolya watch the game
	Sasha and Kolya watch game	
	i yedyát morózhenoye.	
	н едят мороженое.	and eat ice-cream.
	and eat ice-cream.	

Answer the following questioos. Check your answers.

1. Какой сегодня матч?
2. Куда едут Коля и Саша?
3. Где они покупают бнлеты?
4. Куда ндут друзья?
5. Где онн сидят?
6. Что делают Саша н Коля на стадноне?

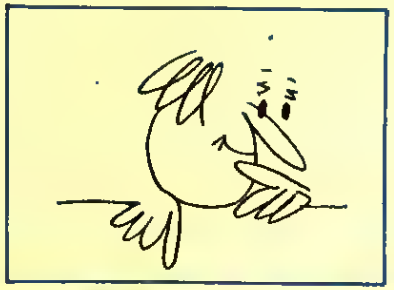
On idyót
Он идёт
He goes



On yédyet
Он едет
He goes

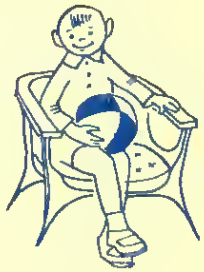
Read the following dialogue. Pay attention to the word order in the questions aod answers.

Диалог	Dialogue
Kudá tI idyósh?	
Куда ты ндёшь?	Where are you going?
Where you go?	
Yá idú v restorán.	
Я иду в ресторан.	I'm going to the restaurant.
I go to restaurant.	
A tI kudá idyósh?	
А ты куда ндёшь?	And where are you going?
And you where go?	
Yá idú na stadión.	
Я нду иа стадиои.	I'm going to the stadium.
I go to stadium.	
A Líza ?	
А Лиза?	And Liza?
And Liza?	
Oná idyót v teátr.	
Она идёт в театр.	She is going to the theatre.
She goes to theatre.	

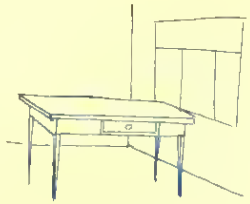


	Где (Where?)	Куда (Where to?)
Это стадион	Саша и Коля **на стадноне.**	Они едут **на стадион.**
Это поле	**На поле** интересная игра.	Они смотрят **на поле.**
Это комната	Он сидит **в комнате.**	Он идёт **в комнату.**

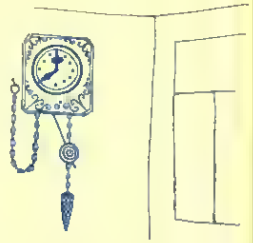
Answer the following questions. Check your answers by the key.



Где сидит Саша?
Саша сидит в (кресло).



Где стоит стол?
Стол стоит в (комната).



Где висят часы?
Часы висят на (стена).

Где сидят друзья?
Друзья сидят в (ресторан).

Куда идут Саша и Коля?
Они идут на (стадион).

Куда едут друзья?
Они едут в (театр).

Куда они смотрят?
Они смотрят на (поле).

Куда она идёт?
Она идёт в (комната).

Key

Саша сидит в кресле. Стол стоит в комнате. Часы висят на стене. Друзья сидят в ресторане. Они идут на стадион. Они едут в театр. Они смотрят на поле. Она идёт в комнату.

Here are some phrases from the vocabulary of sports fans.

Kak sIgráli? 1. Как сыграли? How played?	What was the game?
Vnich″yú. Вничью. A draw.	A draw.
Kakóɪ schyót? 2. Какой счёт? What score?	What's the score?
Dva nol″ v náshu pól″zu. Два ноль в нашу пользу. Two nil in our favour.	2—0 in our favour.
Zdórovo! Здорово! Fine!	Fine!
Za kovó tI boléyesh? 3. За кого ты болеешь? For whom you sick?	Which do you support?
Za "Dynámo". За «Динамо». For Dynamo.	Dynamo.
A yá za "Sparták". А я за «Спартак». And I for Spartak.	And I'm a Spartak fan.

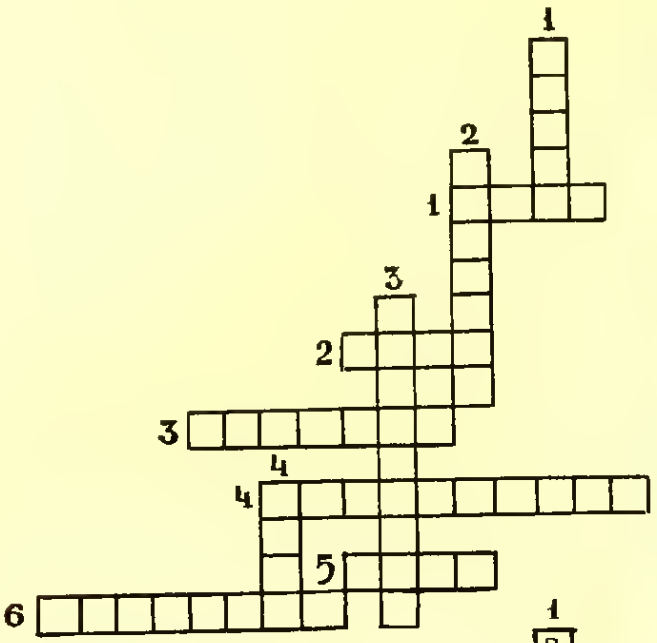
Crossword puzzle

Across

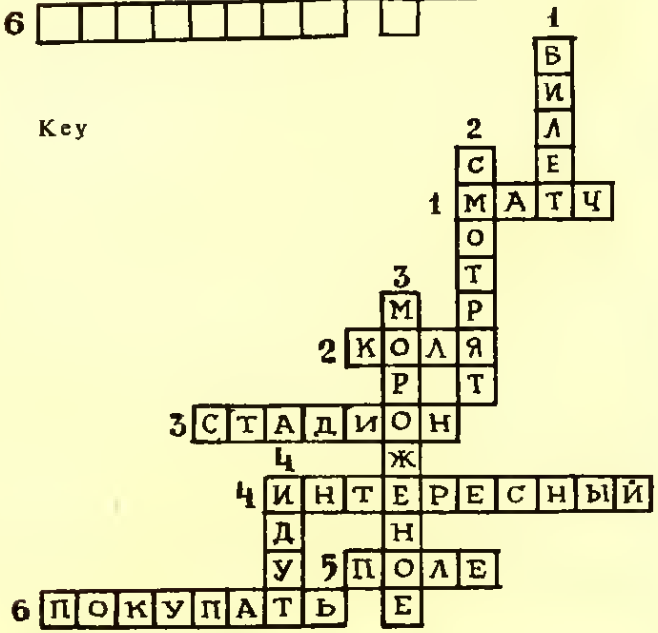
1. A sports contest.
2. A masculine name.
3. A place for outdoor sports.
4. A quality preferred in most spectacles.
5. A place where games are played.
6. To acquire for money.

Down

1. Something we buy in a box office.
2. What people do with their eyes.
3. Very cold, and the children love it.
4. People use their feet when they do this.



Key



Remember the following sayings.

Igrá nye stóyit svéch. — The game is not worth the candle.
Игра не стоит свеч.
Game not worth candle.

Igrát″ s ognyóm. — To play with fire.
Играть с огнём.
To play with fire.

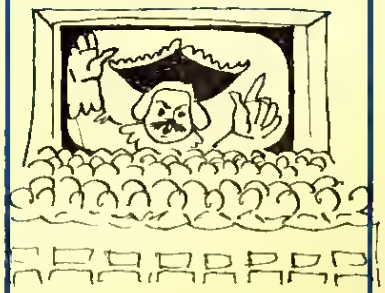
Запомните

Идёт

Идёт дождь

Идёт человек

Идёт игра



Идёт фильм

Болеет

Коля болеет

Коля болеет за «Динамо»

СЛОВАРЬ VOCABULARY

билет, -ы	*bilyét, -I*	ticket, -s
в нашу пользу	*v náshu pól"zu*	in our favour
вничью	*vnich"yú*	a draw
здорово	*zdórovo*	fine
игра, -ы	*igrá, igrI*	game, -s
команда, -ы	*kománda, -I*	team, -s
матч, -и	*mátch, -i*	match, -es
место, места	*mésto, mestá*	seat, -s
мороженое	*morózhenoye*	ice-cream
ноль	*nol"*	zero, nil
поле, поля	*pólye, polyá*	field, -s
покупать, -ешь, -ют	*pokupát", -yesh, -yut*	to buy
северный, -ая, -ое, -ые	*sévernIı, -aya, -oye, -Iye*	northern
сильный, -ая, -ое, -ые	*síl"nIı, -aya, -oye, -Iye*	strong
стадион, -ы	*stadión, -I*	stadium, -s
счёт	*schyót*	score
трибуна, -ы	*tribúna, -I*	stand, -s

Compiled by: Natalia Schmidt, Alla Frolkina, Marina Baturinskaya.

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Highlights of the July issue

THE 'RUSSIAN' GAUGINS — A full-colour section on the unique collection of Gaugin's paintings displayed in Moscow and Leningrad.

LATVIA MINUS BUTTER AND BACON — Portrait of a Soviet Republic

NEITHER CITY NOR VILLAGE — What does the future hold for towns that, economically and socially, lie between the village and the city? A sociologist's appraisal.

RUSSIAN BAPTISTS AND THE STATE — An exclusive interview with the Secretary-General of the Council of Baptists.

GETTING TO KNOW THE OCTOPUS — A Soviet engineer-turned-photographer prowls the floor of the Japanese sea in search of octopi.

The next English Sputnik will be on sale on June 20.

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